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ABSTRACT

This document presents descriptions of nine United States Office of Education-sponsored career education projects selected on the basis of effectiveness by the Joint Dissemination Review Panel of the Educational Division of the U.S. Department of Health, Education, and Welfare. The project descriptions are arranged in an order which proceeds from broad and comprehensive career education programs for grades kindergarten through twelfth, through programs which are comprehensive in scope but more limited in grade level coverage, to the programs which are more narrowly specialized. Programs included are (1) Akron Career Development Program, Akron, Ohio; (2) Pima County Developmental Career Guidance Project, Tucson, Arizona; (3) Project CERES (Career Education Responsive to Every Student), Ceres, California; (4) Project Match (Matching Attitudes and Talents to Career Horizons), Ontario, California; (5) Project CAP (Career Awareness Program), Greenland, Arkansas; (6) Project CDCC (Career Development Centered Curriculum), Coloma, Michigan; (7) Project HEAR (Human Educational Awareness Resource for reducing sex stereotyping in career choice), Princeton, New Jersey; and (8) Project Discovery (Junior High School Career Exploration), Red Oak, Iowa. (LRA)

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CAREER EDUCATION PROGRAMS THAT WORK

Prepared for the
Office of Career Education
Office of Education
U.S. Department of Health, Education, and Welfare

September 1979

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
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...EXTENDING TO STATES...

Title IX of the Education Amendments of 1972, 20 U.S.C. 1681-1681e, states:

"No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance."

Title VI of the Civil Rights Act of 1964, 42 U.S.C. 2000c-1, states:

"No person in the United States shall, on the basis of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance."

Section 504 of the Rehabilitation Act of 1973, 29 U.S.C. 794, states:

"Any program or activity receiving Federal financial assistance shall not discriminate against persons with disabilities. No individual with a disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. No individual with a disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

Therefore, any education program or activity receiving Federal financial assistance, or part of a program receiving Federal financial assistance, must be operated in accordance with these laws.

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BACKGROUND

In August of 1977, the U.S. Office of Education awarded Contract #300770303 to the American Institutes for Research in Palo Alto, California. Funding for the contract was provided by the USOE Office of Career Education from the Fiscal Year 1977 appropriation under Section 406 of the Education Amendments of 1974 (Public Law 93-380). The contract was designed and managed by Dr. Alice Scates of the USOE Office of Planning, Budgeting, and Evaluation.

The scope of work for the contract called, among other things, for the American Institutes for Research to: (1) Solicit nominations of exemplary career education projects from State Education Agency staff and other knowledgeable people across the country, (2) select from the nominations ten career education projects which seemed to have the strongest evidence of effectiveness on the basis of well-documented evaluation reports, (3) work with the staff of each of the selected projects to prepare a JDRP project submission, and (4) present the ten project submissions to the Joint Dissemination Review Panel (JDRP) of the Education Division of the U.S. Department of Health, Education, and Welfare.¹

Pursuant to the terms of the contract, the American Institutes for Research identified and reviewed reports from 250 career education projects. The ten projects which seemed to have the strongest evidence of effectiveness were selected for presentation to the JDRP. Project submission documents were prepared for these ten projects, and they were presented to the JDRP in the Spring of 1978.

¹ For a description of HEW's Joint Dissemination Review Panel, its functions and its procedures, see The Joint Dissemination Review Panel: IDEABOOK, by G.K. Tallmadge (ERIC Document No. ED-148-329).

Of the ten projects presented, seven were approved by the JDRP for citation as projects of proven effectiveness. The seven approved projects were:

<u>Project Title</u>	<u>Contact Person</u>
Akron Career Development Program	Dr. Nicholas J. Topougis Akron Career Development Program Office of Career Education Programs 65 Steiner Avenue Akron, Ohio 44301
Pima County Developmental Career Guidance Project	Ms. Joyce McKay Pima County Developmental Career Guidance Project 2302 E. Speedway, Suite 110 Tucson, Arizona 85719
Project CERES, Career Education Responsive to Every Student	Ms. Virginia Lish Project CERES Ceres Unified School District P.O. Box 307 Ceres, California 95307
Project MATCH (K-8), Matching Attitudes and Talents to Career Horizons	Dr. Norman Steinaker Project MATCH Ontario-Montclair School District Box 313 Ontario, California 91761
Project CAP (Grades 1-8), Career Awareness Program	Mrs. Jeanne Leffler Project CAP Boston Mountains Educational Cooperative for Federal Programs Box 13 Greenland, Arkansas
Project CDCC (K-6), Career Development Centered Curriculum	Dr. Lee Downey Project CDCC Coloma Community School District P.O. Box 218 Coloma, Michigan 49038

Project Equality (for reducing sex
stereotyping in career choice)

Dr. John D. Ross
Project Equality
Highline Public Schools
Educational Resources
and Administration
Center
15675 Ambaum Boulevard, SW
Seattle, Washington 98166

In the meantime, during the Spring of 1978, two additional career education projects were presented to the JDRP by the USOE Bureau of Elementary and Secondary Education. Both of these projects were approved by the JDRP.

They were:

<u>Project Title</u>	<u>Contact Person</u>
Project HEAR (Human Educational Awareness Resource for reducing sex stereotyping in career choice)	Joel Geller Cogent Associates 575 Ewing Street Princeton, New Jersey 08540
Project Discovery (Junior High School Career Exploration)	Dr. William C. Majure Southwest Iowa Learning Resources Center 401 Reed Street Red Oak, Iowa 51566

Thus, during 1978, a total of nine USOE-sponsored career education projects were approved by the JDRP. Under the terms of contract #300770303, the American Institutes for Research prepared project descriptions for the first seven projects listed above. In addition, the USOE Office of Career Education awarded a special contract (#300780432) to Ms. Susan L. McBain of the American Institutes for Research to have the same type of project descriptions prepared for Project Discovery and Project HEAR.

The purpose of the present publication is to make available the project descriptions of all nine of these career education projects which were approved by the JDRP in 1978. It is hoped that these project descriptions will be helpful to local school systems interested in reviewing career education projects of proven effectiveness for possible adoption in their own localities.

On the pages which follow, the project descriptions have been arranged in an order which proceeds from broad and comprehensive career education programs for grades K-12, such as the ones in Akron, Ohio, and Pima County, Arizona, through programs which are comprehensive in scope but more limited in grade-level coverage, such as the ones in Ontario, California (K-8) and Coloma, Michigan (K-6), to the programs which are more narrowly specialized, such as Project Discovery, focusing on career exploration at the junior high school level, and Project Equality and Project HEAR, which focus on the problem of reducing sex stereotyping in career choice.

It should be pointed out that each of these project descriptions constitutes a complete and self-contained document in itself. This makes it possible for the individual project descriptions to be selected, reproduced, and used singly or in any combination which best meets the user's needs. The material in this publication, like the other materials issued by the USOE Office of Career Education, is in the public domain and is not copyrighted. Users may reproduce and utilize the material without restriction, and, in fact, are encouraged to do so.

CAREER DEVELOPMENT PROGRAM

Akron Public Schools

Akron, Ohio

Susan L. McBain

American Institutes for Research

Nicholas J. Topougis

Director, Office of Career Education Programs

Akron Public Schools

30 June 1978

The information reported herein was obtained pursuant to contract no. 300-77-0303 with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to document information according to their observation and professional judgment. Consequently, information, points of view, or opinions stated do not necessarily represent official Office of Education position or policy.

FOREWORD

This activity description was prepared as part of a study conducted by the American Institutes for Research (AIR) under contract No. 300-77-0303 to the U.S. Office of Education. The purposes of the study were to identify evaluated, exemplary career education activities; to recommend identified activities to the Joint Dissemination Review Panel (JDRP) of the Education Division, Department of Health, Education, and Welfare; to prepare descriptions of identified activities; and to develop a handbook with six models for evaluating career education activities.

The criteria established for screening activities in this study intentionally limited choices to those whose evaluation reports presented evidence of effectiveness. Close attention was given to the soundness of evidence in evaluation reports. A minimum requirement for this evidence of effectiveness was that some comparison standard be provided so that gains made by the students participating in the activity could be attributed to the impact of the activity. After confidence in the evidence of effectiveness was established, further criteria were applied. These criteria included consistent relationships between a well-planned assessment of needs, a statement of desired student outcomes, the selection of instruments, and the procedures used in data collection, management, and analysis.

This document describes one of ten projects that was selected from among 250 submitted. It presents one locale's way of successfully implementing a career education activity, the results of which are educationally significant. Although the description reflects an activity developed in response to local needs, other school districts with similar needs may wish to adapt parts or all of it according to their own circumstances and philosophy.

We are especially grateful to the staff of the Akron Career Development Program and to the many school staff members who generously gave their time to answer questions from AIR site visitors. They extended a special kind of hospitality and spared no amount of effort to provide the information necessary to prepare this description. They made it possible for the site visitors to see the program in action, as well as to understand the philosophy and strategies that underlie its operations.

Although some early materials had instances of sex-role stereotyping, current revisions are correcting these problems. In addition, a number of inservice workshops have focused on the topic of social fairness for all segments of the population.

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PROJECT OVERVIEW

TITLE & LOCATION: Career Development Program
Office of Career Education Programs
65 Steiner Avenue
Akron, Ohio 44301

TYPE: Infusion

PROJECT DIRECTOR: Nicholas J. Topougis
Ph: (216) 434-3404

SETTING: This project focuses on students in grades K-10 and offers some services to students in grades 11 and 12 as well. The district contains 47 elementary schools, 10 junior high schools, and nine senior high schools, serving about 50,000 students in a total population of over 275,000. The student population served in 1975-76 consisted of approximately equal numbers of white and non-white students. Akron is a mostly urbanized area with manufacturing, particularly of rubber products, as its major type of employment.

STAFF: One full-time director coordinates the efforts of four elementary level career coordinators and four secondary level career coordinators. A full-time secretary and three part-time para-professionals complete the staff.

GOALS: The goals of Akron's Career Development Program are to increase students' self-awareness and self-esteem, knowledge of the world of work, and skills in decision-making. Seven areas of objectives have been developed based on these goals: the self; the individual and the environment; education and training; the world of work; economics; employability and work adjustment; and decision-making.

EVALUATION DESIGN: Equal numbers of randomly selected program and non-program students were selected in the spring of 1976 for testing on a posttest-only basis. Program students' performance was compared with that of non-program students.

MATERIALS: Available for dissemination are: (1) Flight Plan: Toward a Career Choice -- School-Community Collaboration, an implementation manual; (2) curriculum guides for the K-6 levels; and (3) other selected materials.

COST: The major program costs are the director's, career coordinators', and secretary's salaries.

PROJECT DESCRIPTION

Career education is a "big deal" in the State of Ohio. Since 1968, well before Commissioner of Education Sidney Marland officially christened the movement as career education, Ohio state and local educators have been putting effort, money, and time into preparing their students for the world of work.

The schools in the City of Akron have been among the state's leaders in relating learning to living. With unflagging determination and enthusiasm, local educators and community members have spread the philosophy and techniques of career education into more and more classrooms each year since 1971. The results of their efforts offer any interested school district an adaptable, effective, exciting model which has proven that it works.

PROGRAM DEVELOPMENT

The Akron Career Development Program formally began in the 1971-72 school year, with funding from district, state, and federal (Vocational Education Act) sources.

The approach to career education utilized in Akron is known as infusion, or the continual demonstration of the relationships between school subjects and any and all aspects of the world of work. This approach is not so much a change in curriculum content as in the focus with which material is presented. Almost any subject at any grade level can be approached as a usable set of skills in one job or another, and this is precisely what infusion is all about.

The infusion approach does not focus on short-term, curriculum-specific goals; rather, it focuses on incremental increases in students' self-awareness, career knowledge, and skills in decision-making, so that by the time they leave school they will have developed a solid basis for choosing a satisfying career.

Program Setting

Known as the Rubber Capitol of the World, Akron is the county seat of Summit County. A major college center in the northeastern part of the state, the city is 35 miles south of Cleveland, another important center of learning. The total population of Akron is 275,425; these are divided into 91,593 households. When surveyed in 1970, Akron, Ohio had 104,825 persons employed. Of these, 40,219 worked in manufacturing. Durable goods were produced by 14,791 and non-durable goods by 25,428 people. Manufacturing establishments were the primary

employers in the Akron area, and business, educational, and governmental services were second. Professional service positions supplied 28,388 paychecks. Wholesale and retail trade occupations provided work for 21,278 citizens; therefore, this industry was the third largest source of employment in the area. Transportation, utilities, and communication enterprises were responsible for 6,851, construction 3,828, finance, insurance, and real estate 3,799, and agriculture and mining, 512 salaries. This pattern of employment has strongly influenced the particular careers emphasized in the Akron program; other districts adopting Akron's model would need to tailor their programs to their own settings.

The Akron school system consists of 47 elementary schools, 10 junior high and nine senior high schools. Based on a count from September 1975, the enrollment in the public school system was 48,415. Classes averaging 28.5 pupils were served by a staff of 2,500. Through 1974-75, the total per-pupil expenditure was \$1,182.61.

Innovative programs are common to the Akron Public Schools. New approaches in nongraded student performance evaluation, individually guided education, and team teaching are being implemented. For children with learning impediments, an early identification program has been established. One elementary school features the open classroom concept and a specially designed wing for orthopedically handicapped students.

The Akron Career Development Program

Teachers, of course, have the most contact with students. Community members have the most contact with careers. What brings them together is the district-level Career Development Program staff. This group, which began officially functioning in 1971, consists of a program director and eight career education program coordinators, plus a support staff. The coordinators work directly in the schools; their role is to facilitate in all possible ways the career-related learning of students. They are the experts on media, materials, and community resources, and also the enthusiasts who spread the word about career education and its possibilities.

Career education in Ohio was initiated in 1970. Following recommendations of a 1968 Governor's Task Force, the Ohio Department of Education's Division of Vocational Education provided leadership and financial support for the initiation of six career education programs in Ohio, including one in Akron. In 1971-72 the Akron Board of Education was involved in an extensive program review. The process involved conducting surveys with educators, parents, and high school students to

determine the improvements needed for development and expansion in vocational education. To the specific questions in the survey regarding the need for career development activities, 7,900 students and 4,570 parents strongly agreed that career planning was essential in the total school program.

The initial thrust within the school system for a K-12 career education program came from two major sources. Initial leadership began with the Child Study and Counseling department; shortly thereafter, the director of Elementary Education assumed leadership in bringing together community representatives to determine program needs, concerns, and direction in developing elementary models. The group represented principals, counselors, teachers, personnel administrators from business and industry, parents, and students. Once initial funds were received for programming, the Akron Area Personnel and Guidance Association, a group composed of representatives from business, industry, community agencies and school counselors, accepted the challenge of providing necessary community resources and direction for the effort.

The Key to Akron's Program: Community-School Collaboration

As is no doubt the case with many school systems, the Career Development Program staff has been fortunate to have the collaboration of a host of community organizations in programs that benefit students. These include medical and health, governmental, recreational, business, parent-teacher, newspaper, and service agencies and institutions.

When the Career Development Program began, it was the beneficiary of this community willingness to collaborate in programs that enhance education. For example, the Akron Area Vocational Guidance Association (AAVGA) served as its first Advisory Committee. In that capacity, AAVGA identified and obtained the services of persons from business, industry, and other community organizations for the first career education inservice training programs.

An organization that has a long history of collaboration with the schools in general, and now with the Career Development Programs as well, is the Akron Regional Development Board (ARDB). Although the ARDB was organized only recently, it was formed by the uniting of two older organizations, the Akron Area Chamber of Commerce and the Area Progress Board.

The Chamber of Commerce began a close relationship with the Akron Board of Education in 1946. At that time, several programs were implemented to assist teachers in becoming aware of manufacturing and business operations in the community. A committee of volunteers was formed to develop programs enabling business people and educators to meet and discuss mutual concerns. Many programs

grew from the work of this group, called the Business and Community Relations Committee.

The ARDB has for a number of years worked closely with the Board of Education to fulfill the scholastic needs of the school district; it analyzes Board of Education levy requests and promotes educational fund-raising efforts. Its Education Work Committee representing business, labor, industry, the Akron Public Schools, and the Akron Board of Education, advises teachers and administrators on how to deal with career-related curriculum problems and represents the basic decision-making body for expanding and improving career collaboration efforts. Their effort enables over 1,000 resource persons to be involved in classrooms on an on-going basis. Organizations including the National Alliance of Businessmen, the American Society for Personnel Administrators, the Building and Construction Trades Council of the Akron area, the Urban League, General Motors, the University of Akron and Kent State University, service clubs, and youth clubs offer students class and field experiences related to a variety of careers.

Program Goals: What Are Students Supposed to Learn?

The Akron program, in collaboration with the Ohio State Department of Education and other Ohio cities, has developed seven goal areas within which they hope to influence student growth. These are:

- The Self -- student attitudes, perceptions and self-evaluation of interests, aptitudes, achievements and values.
- The Individual and the Environment -- how the individual relates to the environment; the role each person plays in the home, school, community and work.
- Education and Training -- learning skills, ideas, and appreciations that the individual needs in order to experience a successful life.
- The World of Work -- work values, the variety and nature of occupations, work families and their interdependence, and methods of studying and classifying occupations.
- Economics -- the individual as both a worker earning income and a consumer spending income; principles of the American economic system and the individual's relation to them.
- Employability and Work Adjustment -- obtaining and holding a job and advancing in a career.
- Decision Making -- learning a process that is necessary to all aspects of living, including the choice of a career.

Program Emphasis and Philosophy

Goal areas are not emphasized equally at all grade levels. Instead, activities at each grade level focus on areas which are judged to be most appropriate and most fundamental for future growth. For instance, at the K-6 level, efforts are aimed at helping students develop positive self-concepts, an awareness and appreciation of many different careers, positive attitudes toward work, and an appreciation of the dignity of all work. The 7-8 program is intended to develop students' skills in evaluating their interests and abilities and recognizing the relevance of occupational characteristics to those interests and abilities. The 9-10 program focuses on helping the students study selected career areas in depth according to their interests, and also on helping them to integrate school subject choices into their overall explorations.

At each level, specific learner outcomes have been formulated within the seven developmental areas. The K-6 level is divided for this purpose into K-3 (elementary) outcomes and 4-6 (intermediate) outcomes. These outcomes are listed in Appendix A.

The main points of the career education philosophy in Akron's program can be described as follows:

First, career education activities must begin early, because the fundamentals of children's career development begin early, especially their attitudes toward work and their self-esteem.

Second, career education must be infused into the total curriculum instead of being "added on," because the central purpose of career education is to demonstrate the relevance of all learning to the world of work.

Finally, career education must involve parents, community group members, and workers of all types as collaborators with educators, because of the sizable impact these persons may have upon students and the unique information and experiences they can contribute to student career development.

What Were the Central Steps in Planning the Program?

The staff of the Akron Career Development Program has paraphrased Akron's planning process in terms of suggestions for districts wishing to follow their program model. These suggestions are found in their handbook called Flight Plan: Toward a Career Choice, an excellent and fascinating guide for potential adopters. According to the Flight Plan, the following basic steps are advised:

- First, educators and the community must make a serious commitment of time, money, equipment, and personnel to the career education effort.

- Second, a program leader must be found who is knowledgeable, skillful, and committed to change.
- Third, all educational departments in the district must be involved as participants in the collaborative effort and must identify their needs and goals regarding career education.
- Fourth, all school staff members must receive inservice training in career education concepts and techniques.
- Fifth, open lines of communication among school staff members and community members must be established.
- Sixth, community characteristics desirable for successful collaboration must exist or be developed.
- Seventh, direct contact must be made with community leaders to enlist their support of and ideas concerning career education.
- Eighth, community leaders must be trained in how to match their resources to student needs.
- Finally, all people involved in the career education effort must help specify the objectives and outline the program for career education.

The details of these suggestions, excerpted as a whole from the Flight Plan, are found in Appendix B.

MATERIALS AND ACTIVITIES

The program in Akron may be defined as a pattern of career-related activities integrated into all aspects of Akron's K-10 curriculum, increasing in detail and sophistication as students reach higher grade levels. (Partly for reasons of funding, the Ohio Career Development Model upon which Akron's program is based has been developed only for grades K-10.)

The activities used in this project are as varied as the teachers who teach them. First, detailed curriculum guides have been developed by project staff members and teachers for all levels. Second, many commercially developed career education curriculum units and filmstrips are available. Third, field trip sites, speakers, and work sites are available to all teachers and new additions are continually sought. Finally, the career coordinators are always willing to help teachers modify existing activities or develop original activities if the teacher feels that student needs will best be met that way.

The nature of Akron's infusion process makes it impossible to say, "All teachers used these materials or took these field trips." The available materials, speakers, and work sites constitute resources from which teachers and other staff

members can decide on those activities they feel are most appropriate for their students. And, in fact, what is most transportable about the Akron model is the methods by which the Career Development Program Staff went about obtaining these various resources and helping teachers implement them in classrooms, not the resources themselves in many cases.

Since it is impossible to specify activities which all teachers used, a general description of types of activities and some typical examples will be provided instead.

What Happens at the K-6 Level?

In the K-6 curriculum, known as career motivation, the curriculum depends heavily on in-class activities, appropriate texts, and learning materials integrated into the on-going curriculum. At the kindergarten level, teachers generally provide three to four hours a week of exposure to career education activities. In grades 1-6, about twice that time per week is typically used.

As an example, third graders in one elementary school used yarn, glass eyes, pipe cleaners, and glue to make "warm fuzzies" on a classroom assembly line. Inspiration for the project was a story about people who exchanged warm fuzzies as a way of saying, "I like you." Before starting production of the warm fuzzies, the class studied business terms and principles. Other preliminary activities were: (1) field trips to observe assembly-line production and division of labor; (2) a talk by an attorney about starting and operating a corporation; and (3) a talk by a banker about kinds of bank accounts. A corporation was formed, shares of stock were sold at ten cents and a board of directors was elected.

After decisions had been made on the number of jobs performed in the production of warm fuzzies, students applied and were interviewed for the kind of job they preferred. Stockholders met and decisions were made concerning "capital goods" needed (scissors, wire cutters, storage containers, art supplies) and purchase of "raw materials" (yarn, pipe cleaners, glue, glass eyes). Safety rules were written for five production lines, each with a supervisor and quality control person. Prices for different sizes of warm fuzzies were determined after the first "production runs."

Advertising and promotions were devised and carried out. Kinds of sales included: (1) direct marketing to students and teachers; (2) filling out of orders from teachers and from a candy company; and (3) selling through such agents as a neighborhood store, church bazaars, and flea markets. Money received from sales provided two stockholder dividends, which returned not only their original

investment, but also donations to a hospital fund and the school.

This example illustrates an activity which taught the students a great deal about the business world, but at the same time stressed basic academic skills in mathematics and communications, as well as problem solving, decision-making, and group participation skills.

What Happens at the 7-8 Level?

At higher grade levels, time spent on career education is more flexible than in grades K-6, but might typically occupy one day a week. At grade levels 7-8, the career orientation focus calls for students to be exposed to career consultants, work laboratories, and field experiences allowing them to observe semi-skilled to professional occupations. In addition, career orientation activities stress the economic and social values of work, continued self-appraisal in relation to various careers, and development of decision-making skills.

For instance, students in an eighth grade English class visited a publishing company, heard speakers from publishing, printing, and distributing companies, and then published their own magazine. They established policies and areas of coverage, gathered and wrote up material, decided on the layout, and pasted up the final version. The issue was printed and the students distributed it to other classes at no cost.

What Happens at the 9-10 Level?

In grades 9-10, actual career exploration is the focus. Students' areas of career interest, pinpointed in the eighth grade through consultations and interest inventories, are used to help them select relevant academic subjects in the ninth grade, and also to help teachers tailor career experiences to their own students. Films, curriculum units, and resource speakers are supplemented by on-site work exposure. Paid and unpaid work experience is encouraged; for instance, home economics students volunteer their services at local day care and nursing care centers. Field trips to local firms are made, occupying from one hour to a full day or more. Specific company policies on hiring, salary, working conditions, and necessary education are explored. Guidance activities, such as decision-making and values clarification exercises, are brought into the classroom, conducted by the teacher, counselor, and/or career education coordinator.

In the tenth grade, three options are available to students. First is continued career education activities in the regular classroom framework. Second is special "block-time" scheduling into three classes (English, social studies,

and a study hall) in which career exploration is paramount. The daily time block makes feasible larger scale, more intensive career exploration and work exposure experiences. The third is a pre-vocational cluster program offered one period per day for the entire tenth grade year. Students who have tentatively chosen a vocational education training program to pursue in grades 11-12 rotate among five related vocational areas of their selection plus a segment on guidance and self-assessment. In each vocational area they receive an overview of the occupations involved in that area. At the end of the year they confirm their original vocational education choice, choose another area, or decide to enter a non-vocational program.

An example activity at this level was a food services exploration program which was sponsored by the Education Committee of the Akron Area Restaurant Association and other agencies. Based on vocational interest testing, enrollment in home economics classes, and counselor recommendations, career education coordinators identified students interested in food service careers and made transportation and other necessary arrangements. They also prepared students for the experiences by discussing what to look for and kinds of questions to ask workers at the sites to be visited.

Observations were made at six places: (1) a wholesale meat supplier; (2) a formal restaurant; (3) a fast-food outlet; (4) a hospital food service, with special attention to diet services; (5) a dairy; and (6) a two-year program in food service management.

All the above examples of career education activities represent major projects in which students have been involved to learn more about careers. But it should be remembered that small, everyday connections between school subjects and careers are just as typical of infusion in the Akron program. For instance, in the first grade, children might be asked to collect or draw pictures of various workers and their tasks (such as a policeman helping children cross the street). Fifth graders might prepare reports on how various workers use math in their jobs. Eighth graders might discuss what new careers have arisen in the space age.

What Careers Fit What Subjects?

At all levels, activities suggested in the project's curriculum guides cover all 15 occupational clusters developed by the U.S. Office of Education; the clusters are generally distributed among subject areas as follows:

In social studies classes, the Transportation and Public Service clusters are covered.

In science classes, the Agri-Business and Natural Resources, Marine Science, Environmental Control, and Health clusters are covered.

In language arts, the Communications and Media and Business and Office clusters are covered.

In mathematics classes, the Marketing and Distribution cluster is covered; in addition, the relevance of mathematics to all clusters is emphasized.

In industrial arts classes, the Manufacturing and Construction clusters are covered.

In home economic classes, the Consumer and Homemaking, Hospitality and Recreation, and Personal Services clusters are covered.

In music and art classes, the Fine Arts and Humanities cluster is covered.

It is clear that this approach lends itself to use with many different types of students and many different teaching strategies. Basically, teachers can select or adapt, or even develop from scratch, those activities which best suit their students and their preferred teaching styles. However, the basic assumptions of the Akron program do have certain implications for teaching strategies:

1. Since self-awareness (and, preferably, self-esteem) are fundamental to career education, guidance activities play a large part in the curriculum, particularly at the K-6 level.
2. Emphasis on development of student decision-making skills suggests that not only should structured decision-making exercises be used with students, but also that the choices they make in their daily lives should be highlighted and explored.
3. Emphasis on the students' abilities and interests in regard to careers implies a carefully non-stereotyped approach to the presentation of career information.

Career education can be conducted in a traditional classroom; however, it also lends itself easily to more innovative and individualized class settings as well.

What Physical Facilities Are Needed?

With such a wide variety of activities, it is evident that specific facilities that are necessary in this program cannot be pinpointed. In general, program staff and teachers have done as much as possible to explore the career implications of the physical facilities it already possessed, such as science laboratories, industrial shops, vocational education facilities, etc. For more specialized facilities, coordinators and teachers have looked to the community and its resources.

Since 1976, Akron's commitment to career education has led to the construction of a new high school, Central Hower, in which facilities have been tailored to the six career clusters taught in the career education component (business administration and management, communication arts, engineering, science and mathematics, medicine and health, performing arts, and social sciences), and in which career-related facilities are among the most up-to-date in the country.

The program's success has also led to plans for other Akron high schools which will follow the Central Hower model, integrating high-school level career experiences with continuing academic study. These newly built or remodeled facilities represent a major financial commitment, evidence of the Akron community's widespread and continuing belief in career education.

What Are Some Key Materials Used?

The locally developed curriculum guides are fundamental materials for teacher use. Each of the grade 1-6 guides is a booklet of 50 to 150 pages, indicating teacher approach and pupil activities, references and materials, and goal statements. Each booklet lists activities under the subject headings of health, mathematics, language arts, science, and social studies.

For instance, the following ideas are suggested for social studies activities for second graders:

COMMUNITY HELPERS		
TEACHERS APPROACH AND PUPIL ACTIVITIES	REFERENCES AND MATERIALS	GOAL STATEMENTS
1. Policeman a. Invite a policeman to speak. b. Interview an officer and report to the class. c. Discuss advantages and disadvantages of this job.	Use book: Slobodkin - <u>Read About the Policeman</u> Use Filmstrip - Fs 1179 - Policeman	Students will be able to list work tasks of a policeman.
2. Fireman a. Invite a fireman to speak. b. Interview a fireman. c. Visit a fire station. d. Visit the training station.	Utilize books such as <u>Read About the Fireman</u> Use films and filmstrips on fireman and fire-fighting	Students will be able to list work tasks of a fireman.
3. Postman a. Interview or invite a postman to speak to the class. b. Visit a post office. c. Make a mural showing the different workers who handle mail from the time it is deposited in the mailbox until the addressee receives it.	Use books such as <u>Read About the Postman</u> Use filmstrips such as FS1181 - The Mailman	Students will be able to draw work tasks of Postal employees.

TEACHERS APPROACH AND PUPIL ACTIVITIES	REFERENCES AND MATERIALS	GOAL STATEMENTS
4. Doctor a. Invite a doctor to speak to the class. b. Visit a hospital.		Students will be able to list some work tasks of a doctor.
5. Nurse a. Invite a nurse to speak to the class. b. Visit a hospital. c. Discuss the many kinds of nurses.	Books such as <u>First Book of Nursing</u> , and <u>First Book of Hospitals</u>	Students will be able to list the kinds of nurses.
6. Ambulance Driver a. Invite an attendant to talk to the class.		Students will be able to play the work tasks of an ambulance attendant.
7. Small Shop Owner a. Visit a small shop. b. Invite the owner of a small shop to tell about his business.		Students will be able to role play the work tasks of a small shop owner.
8. Owner or manager of a large store, supermarket, or department store a. Visit one or more of these establishments. b. Invite workers to tell about their jobs.		Students will be able to draw work tasks of supermarket employees.

Sixth graders might be exposed to some of the following activities during a mathematics curriculum:

FRACTIONS - MEASUREMENT - DECIMALS		
TEACHER APPROACH AND PUPIL ACTIVITIES	REFERENCES AND MATERIALS	GOAL STATEMENTS
1. Discuss how a trucker must compute fuel prices using his knowledge of decimals.	Paper	Students understand how truckers and other transporters use decimals in their work.
2. Devise an Air Freight Rates Chart listing where the freight travels from and to, plus the cost (per 100 lbs.) Use decimals to compute your answer.	Paper	Students recognize how mathematics is used by freight industry.

TEACHER APPROACH AND PUPIL ACTIVITIES	REFERENCES AND MATERIALS	GOAL STATEMENTS
3. Students conduct a public opinion poll. Graph the results.	Paper, ruler, questionnaire developed by class	Students can graph various types of data and understand poll results.
4. Make a field map of the school grounds.	A level table cut from wallboard or a clipboard; an alidade can be constructed by placing straight pins at the ends of a ruler; pacing can be made accurate by checking strides against known distances	Students can explain how to make a field map.
5. Learn to read railroad, airline, and bus line timetables. Develop a new timetable.	Timetables from various transportation companies	Students can read transportation timetables.
6. Obtain a large map of Akron (or Ohio) and mark the routes of field trips taken throughout the year. Use the scale to compute the distance in miles traveled during the year.	Yarn, large map of Akron or Ohio	Children are able to compute actual distances from the scale on a map.
7. Investigate and list the various types of surveying done and the tools used for each type. Example: land, geodetic, topographical, underground, nautical, and aerial surveying.	Encyclopedia	Students can match the names of the different types of surveying to their descriptions and name a few of the important tools of the surveyer.
8. Divide the class into small groups and let each group design a house.	Paper, rulers film: "Drafting" - 7 minutes, c-follow-up for house designs	Students can use their knowledge and imagination to design some type of building.
9. Build a model of the house that each group has designed.	Cardboard or experiment with other materials	Children are able to devise a model of the house they have designed.
10. Develop a list of occupations which require a knowledge of square measurement. Example: laying tiles for floors and ceilings, carpeting, wallpapering, and landscaping.	Paper	Students are able to name several occupations in which square measures are used.

The 7-10 curriculum guide covers the subject areas of English, home economics, industrial arts, math, science, and social studies. In addition, it contains a 43-page list of career-related materials, audio-visual aids, and filmstrips available from the Career Development Program. Suggested activities in this guide can be adapted to any of the grade levels with some modifications. Each activity suggestion lists the content, concepts, techniques, and resources applicable to that activity. An example of suggested science activities follows:

CONTENT	CONCEPTS	TECHNIQUES	RESOURCES
<u>Earth Science</u>			
1. A mineral is a naturally occurring inorganic solid, with a fixed internal (atomic) structure.	The economic geologist is both scientist and business man. He/she must analyze, synthesize, compile, and coordinate data of both a scientific and economic nature.	Discussion: Use the following questions to stimulate discussion: What is a natural resource? What is a human resource? What industries depend on natural resources? What industries depend on human resources? Would you rather work with people or objects?	Boyd, Waldo T., "Your Careers in Oceanology" 1968 Simon Shuster, Inc. 1 West 39th St., New York, N.Y. 10013 Occupational Outlook Handbook Published by the U.S. Dept. of Labor, Bureau of Labor Statistics
2. A rock is a portion of the earth's crust. It is composed of one or more minerals.	To identify a rock or mineral, several work functions are employed. Some of these are: a) <u>evaluating</u> - data obtained by examination of observable physical properties. b) <u>judging</u> compositional characteristics. c) <u>comprehending</u> forms in space (cleavage, crystal forms) d) <u>perceiving pertinent detail</u> in objects. e) <u>visual comparisons</u> to see slight differences in form or shape.	Most earth science instruction includes several lessons on physical properties and identification of rocks & minerals, followed by a lab activity in which the students identify "unknown" hand specimens. The teacher should precede this lab with a discussion of the work functions outlined in "concepts" writing the statements on the board. Have students determine in what way these functions will be employed in their identification exer-	+ Careers, Inc., Largo, Florida, 33540, Oceanographer, Summary No. S-187 Gamow, George "Matter, Earth & Sky" Prentice-Hall, Inc. Englewood Cliffs, N.J. 1965 Weitz, Joseph L. <u>Your Future in Geology</u> , Richards Rosen Press New York, N.Y. 10010, 1966 Chronicle Occupational File

CONTENT	CONCEPTS	TECHNIQUES	RESOURCES
	f) using <u>finger dexterity</u> . g) making <u>color discrimination</u>	cise. During and following the identification processes, discuss difficulties and successes with as many individual students as possible emphasizing these in relation to the various work functions performed.	Occupational Exploration Kit - SRA
3. Many industries depend on economic geologists and mineralogists to find natural resources.	The geologist is likely to be a person who prefers working in a non-social setting with things or objects in an abstract or creative way.		
4. In studying the earth's crust, rocks and minerals must be identified.			
5. Rocks & minerals are classified and identified on the basis of their observable physical properties.			

These curriculum guidelines are undergoing revision in order to update them and erase any lingering sex stereotyping left in since the first drafts were written in 1972. They might serve as useful models to an adopting district, but it must be remembered that their suggestions may not apply to the career-related needs of students in other parts of the nation. Again, it is the methods of implementing career education which they present that are most transportable.

Other career education materials produced by project staff include Outline for Programming at the senior high school level; a number of brochures for community people and agencies; a special career curriculum guide for fusing career education into the reading management system; special guides for elementary science and math; and special guides for special education.

PARENT AND COMMUNITY INVOLVEMENT

Again, the project staff, writing in the Flight Plan, has best expressed the roles which parents and community members can play in a collaborative approach to career education. Like the planning process, these roles are expressed in terms of models which adopting districts might follow, but are based on actual experience

from Akron's program:

In carrying out collaboration, the family and home can

- motivate children's learning because evidence shows a strong connection between student achievement in basic skills and parental influence.
- serve as the student's first source of information about career descriptions, demands, and qualifications.
- discuss work experiences with children: positive as well as negative aspects of current job; how it was obtained; changes in jobs; job aspirations; what might be done differently in job selection and preparation; desirable alternative jobs.
- relate work in and outside the home to home maintenance and family support.
- reinforce the work of the school in developing good work habits by relating them to children's household duties.
- encourage children to take advantage of school programs to enlarge their career awareness and knowledge.
- be willing to serve on an advisory committee, or other policy group, for career education.
- serve as resource persons to talk about job experiences in the classroom.
- help to arrange for school visits to places of employment.
- encourage other parents to speak about their careers in the classroom and to arrange school visits to their places of employment.
- volunteer to accompany students on field trips or other exploratory experiences....
- teach "mini courses" on hobby skills or on community organizations that need volunteer help; the purposes would be to encourage worthy use of leisure time as well as to orient students to possible careers.

In carrying out collaboration, business, labor, industry, government, social services can

- establish a community-education council to discuss, formulate, and implement policies with regard to collaboration; committees, each representing schools and a segment of the working community, can also be formed to work on specific programs.
- provide up-to-date information about available community field trip observation sites and classroom speakers; participate in evaluation of field trips and speaking engagements.

- supply schools with information about available community field trip observation sites and classroom speakers; participate in evaluation of field trips and speaking engagements.
- set up a system for contacting labor union officials and members to facilitate their participation in various phases of career education.
- identify a corps of personnel officers to aid school counselors in orienting students to realities in the world of work as well as to postsecondary education and training opportunities.
- participate in in-service programs for school personnel.
- provide opportunities for teachers, counselors, and other educators to observe and/or participate in various kinds of occupations by means of workshops during vacation periods.
- organize work-exchange programs for limited periods of time, during which school employees and persons from a variety of employment sites in the community exchange work roles.
- share techniques and methodology used for training in proprietary, in-house, and union workshop programs.
- study selected persons in various occupations, perhaps by using Social Security records, to determine what kind of preparation is most contributory to job success and satisfaction.
- make realistic definitions of requirements for jobs available in the community and communicate these to educators and students.
- develop policies on, and opportunities for, student work experiences which are part of their school programs and which do not cause displacement of adult workers.
- make an inventory of part-time jobs available locally for students in various age groups.
- organize a system for providing students and parents with information concerning present and future manpower needs in various full-time occupations and the number of persons preparing for such occupations, especially at the local level.
- coordinate job placement services in the community, together with follow-up procedures.

Several projects involving parents are described in detail in the Flight Plan. Experiences and suggestions are presented regarding parents as speakers on career-related topics; parent effectiveness training groups; and parent involvement in a school-wide business similar to the Warm Fuzzy Company described earlier. Also, of course, the business/community groups who have played an active part in career education in Akron have been made up largely of interested, involved parents.

What Kinds of Things Has the Community Done?

The high involvement of business, labor, industry, government, and social service organizations in Akron's program has already been referred to. The most significant thing about this role is the shared authority and responsibility for career education which these groups carry, along with the Akron school system. This shared authority and responsibility really are the essence of the collaboration concept in Akron. Community groups actually initiate and carry out educational activities, as well as providing constant input to school efforts. Some of the activities which community groups have been responsible for are:

Labor Education Advancement Program (LEAP), sponsored by the Urban League and others. This program exposes high school students, particularly ethnic minorities and women, to the wide variety of careers available in skilled and industrial trades.

Job Readiness Program, sponsored by the American Society for Personnel Administration. This program, conducted within the schools in all tenth grade classes, presents students with information on job applications, hiring procedures, and job interviewing.

Vocational Exploration Program, sponsored by the National Alliance of Businessmen and the AFL-CIO Human Resources Development Institute. This summer program enables employers and unions to hire economically disadvantaged young people.

Measures of Participation. Several measures are used to determine levels of parent and community involvement. A master card catalogue that includes every community resource utilized in the program is constantly kept current to include classes involved, contact person(s), teacher(s), and time and date of utilization. Master calendars of all field observations are posted daily. Certificates of appreciation are sent to all parents and community members who offer their services to the program during the school year.

Details of program operations and suggestions for adopting districts are found in the Flight Plan.

STAFFING AND MANAGEMENT

Staffing

The Program Director. The director of the Career Development Program reports to the Assistant Superintendent for Curriculum and Instruction; he also works in close cooperation with the directors of Elementary Education, Secondary Education, Child Study and Guidance, Vocational Education, and Special Education. He is responsible for: (1) working with the above departments in curriculum develop-

ment and implementation of activities; (2) directing the career education staff in developing programs and carrying out activities; (3) developing and working with collaborative programs involving local business, industry, labor, and community agencies; (4) acting as advisor to the Akron Regional Development Board Business-Education committee; (5) giving leadership for organizing and carrying out inservice programs (6) administering the program budget and submitting proposals for funding; (7) conducting evaluation of the total program and the personnel with it; and (8) disseminating program information to the total school system, business, labor, and the rest of the community.

The Career Education Coordinators. There are eight full-time career education program coordinators: four at the K-6 level and four at the 7-10 level. Each elementary coordinator is assigned to work in two or three elementary schools, for a total enrollment of approximately 1,800 - 2,000 students. The secondary coordinators have a similar student/coordinator ratio.

Both secondary and elementary coordinators must have three years of teaching experience, one year of outside work experience, and (preferably) counselor certification. Their specific functions are:

1. working with curriculum specialists and school staffs to infuse career education into the existing curriculum
2. helping teachers to develop career-related activities
3. assisting in the selection and distribution of supplemental career education materials
4. assuming responsibility for administrative tasks related to planning and scheduling of resource speakers and field observations
5. developing and implementing in-service meetings both at the building and program-wide levels
6. providing leadership for, and serving on, building advisory committees for career education
7. working with the building counselor to develop and implement a guidance program as it relates to career development, or taking full responsibility for this, if there is no building counselor
8. conducting periodic evaluations of the Career Development Program as required by the State Department of Education.
9. working with local business, industry, labor, and other community organizations in collaborative efforts for career education
10. making presentations to local and other meetings, and
11. acting as liaison persons between the career education office and their respective buildings.

During the 1976-77 school year, one secondary coordinator worked full time as liaison person with the Akron Regional Development Board for expanding collaboration with the community in career education. In that capacity, his duties were:

1. representing and explaining career education at various community and professional meetings such as inservice programs, university classes, and sessions of local, regional, state, and national organizations
2. chairing a subcommittee of the Akron Regional Development Board's Business-Education Committee
3. identifying appropriate community persons to serve on ARDB subcommittees
4. assisting the other coordinators with inservice program development through liaison with the ARDB and the University of Akron
5. maintaining and improving existing collaborative efforts in career education and developing new ones with local community resources
6. intensifying efforts to collaborate with labor unions in career education, and
7. developing an instrument to secure information to aid in job placement for students from the three senior high schools associated with the Career Development Program.

The Support Staff. The program support staff consists of four people. The secretary to the director, besides performing usual secretarial duties, also acts as account clerk for the program. One paraprofessional processes arrangements for field trips and speakers. Two other paraprofessionals also provide support to professional personnel. They follow up correspondence on field trips and speakers; send notices; make reservations; gather materials for inservice meetings; monitor the loan and return of materials in the career education office; sometimes cover classes for teachers on field trips; occasionally drive students to field trip sites; and assist with supervision of students.

Management Strategies

The management of the coordinator team includes a number of processes. Prior to the beginning of school, the career staff assesses program needs for the year, determines major areas of concentration, and establishes time frames for accomplishment of major program goals. Each coordinator submits his or her own target objectives for the year to the director. These targets are discussed and agreed upon by both parties. End-of-the-year personnel evaluations relate to the agreed upon job targets identified.

Two half-days per week are devoted to planning time and staff meetings.

This provides an opportunity for the career staff to be aware of overall programming and any staff concerns. Weekly logs are submitted to the director, providing an up-to-date review of each coordinator's activities and the time allocated to each building. Periodically, the director reviews the log with each coordinator in order to make necessary adjustments in total services provided to building staffs.

The overall management strategy of Akron's program can be summed up into two principles: share decision making, and give recognition for individual effort. As the director of the Career Development Program puts it, "My own personal strategy of program management is to delegate program responsibilities to all parties involved in career education. The department constantly strives to involve other major educational departments in developing and implementing the program. In other words, career education doesn't belong to the director of career education or his staff, but it belongs to teachers, administrators, and local people."

Inservice Training

For the original group of career coordinators, most training was necessarily on-the-job. Recent recruits, however, have benefitted by a three-week inservice training program and a considerable amount of time working closely with trained staff members. Inservice training for all career staff consists largely of professionally sponsored workshops and conferences.

The objectives of inservice training for school staff members are: (1) to develop an awareness of career education concepts; (2) to demonstrate to them that use of community resources must be part of career education; and (3) to assist them in devising methods of incorporating career education concepts into their school functions. Specific objectives for in-service sessions are tailored to the needs of participants and to types of workshops.

Inservice training has been of various types. First, the University of Akron, through its Coordinator of Career Education Workshops, has since 1974 offered a four-hour credit course in career education open to both practicing educators and undergraduate education students. The coordinator also provides direct assistance for inservice education to local school districts implementing career education programs. These inservice programs also may be given for credit.

Building-level inservice programs are conducted twice a year or more for the entire staffs of school buildings involved in the Career Development Program. Purposes include introducing teachers to new career education materials, meeting

the needs of the staff in a particular school, and demonstrating activities from other career education workshops or classes. Specific topics are determined by consultation with the building principal and by assessment of teacher needs on regular end-of-year evaluation of the Career Development Program. An example program in 1976-77 focused on helping teachers explore their attitudes concerning career education. A series of sessions was held throughout the year on the following topics: (1) attitude and staff development, (2) attitude and behavior, (3) attitude and professionalism, and (4) attitude and self-development.

Mini-workshops are also offered, occupying usually one Thursday afternoon plus a day-long Saturday session. Unlike building inservice, these workshops offer optional college credit. In 1976-77, seven mini-workshops were held covering the following topics:

1. Career education: What is it? How to do it?
2. Self and decision-making
3. Reading: Who needs it? Career education and reading skills
4. Kindereconomy and mini-society
5. Developing placement skills
6. Special Kids
7. Career education and stereotyping

Seminars, centered around a year-long theme and featuring two speakers and opportunity for questions, are held monthly. The 1976-77 theme was business structure and business management.

Finally, a major inservice effort each year is the summer Career Guidance Institute. The one- to two-week program enables school staff members to go out into selected community organizations to learn more about the world of work and to increase their knowledge of community resources which may be usable with their students. One or two full days at one or more work sites are the usual practice at these institutes, with an orientation session preceding each on-site visit and follow-up sessions afterward. At the work site, staff are commonly exposed to business decision-making and problem solving processes; operating procedures and processes; and personnel requirements. Business, government agencies, and community organizations have all hosted such on-site visits. Follow-up sessions are used to help staff members develop materials (simulations, games, slide-tape or video-tape presentations) or strategies for use in the classroom.

As mentioned, the primary responsibility for planning and implementing inservice programs rests with the building coordinators and the Coordinator of Career Education Workshops from the University of Akron. These people plan the

content of the sessions, obtain resource speakers and materials, conduct sessions, and coordinate activities. In this process they encourage the support and contributions of school staffs, especially administrators, and school and community persons with expertise in career education or specific career areas. In other words, the collaborative process extends to planning staff development in addition to planning student activities.

Assessment of each program is done at the program's close. Participants from both school and community, if applicable, are asked to indicate their satisfaction with the program and their growth in knowledge and attitudes. Weaknesses in the program and recommendations for future programs are also sought. In addition, the levels of implementation in the classroom are later assessed, near the end of each school year, by asking staff members to indicate the percentage of time they spend with students on various types of career education activities.

COSTS

Sources and Levels of Funding

1971-72:	80,810 (VEA Part C State)	1972-73:	147,695 (VEA Part C Federal and State)
	38,000 (VEA Part D State)		87,395 (State and Local)
	56,090 (State and Local)		\$ 235,090 Total
	\$ 174,900 Total		
1973-74:	141,054 (VEA Part C State)	1974-75:	82,565 (VEA Part C Federal)
	101,827 (State and Local)		189,700 (State and Local)
	\$ 242,881 Total		\$ 272,265 Total
1975-76:	16,115 (VEA Part C Federal)		
	530 (VEA Part D State)		
	247,735 (State and Local)		
	\$ 264,380 Total		

Since the Akron effort is so large and its career education activities are constantly expanding, it would be unrealistic to make a distinct on between "implementation" and "maintenance" costs. Also, facilities costs may vary widely depending on what district, school, and community resources are already available, so costs for facilities are not included. In 1975-76, direct project costs were as follows:

	<u>K-6</u>	<u>7-8</u>	<u>9-10</u>
Personnel	\$116,781	\$41,147	\$53,821
Personnel Training	2,649	1,921	210
Equipment	400	325	0
Consumable Supplies	8,105	4,920	2,873
Other (travel, postage, telephone, pupil transportation, miscellaneous)	23,454	9,458	3,096
	<u>\$151,389</u>	<u>\$57,771</u>	<u>\$60,000</u>

Personnel training costs refer only to costs of consultant time and rental of facilities. Teachers are not paid for participation in the training program. Instead, the awarding of college credits for some inservice sessions and the high quality and relevance of the training provide incentive for participation.

In 1975-76, approximate costs per student were \$20 at the K-6 level, \$25 at the 7-8 level, and \$30 at the 9-10 level.

EVIDENCE OF EFFECTIVENESS

The Evaluation of the Program

Evaluation of the effectiveness of Akron's program took place during the 1975-76 school year. A third-party evaluator developed the test used to measure career education results throughout Ohio. The evaluation design used in Akron was a treatment/control group, posttest only design. Testing was done at the third, sixth, eighth, and tenth grade levels.

The Tests

The tests used to measure student growth were developed in 1974-75. After observation of in-class education practices in Akron and another Ohio city, the evaluators developed and pilot-tested pools of cognitive and affective items. Those items judged to best address the program's objectives were then field-tested in seven Ohio cities. The evaluators selected the items that discriminated most effectively between program and non-program students to construct cognitive and affective tests of career education concepts in grades 3, 6, 8, and 10. Each test contained 40 cognitive items and 40 affective items.

Content validity of the tests was rated by Ohio state and local program officials. They were asked to rate each item from the final tests as "important," "neutral," or "unimportant." They rated an average of 87% of the test items as "important" while only 4% were rated "unimportant." Only those items rated "important" were left in the final test version.

Reliability coefficients for the cognitive and affective sections were computed using the Kuder-Richardson 20 formulas. The average cognitive section reliability coefficient across grade levels was .86; for the affective section, the average reliability coefficient was .60.

Sample test items are:

- Grade 3 (cognitive items): Which is a job in medicine? A. Orderly
B. Patient C. Officer D. Teacher
- Grade 6 (affective item): I'm too young to think about what I want to do when I grow up. A. Agree B. Disagree
- Grade 8 (cognitive item): What occupation would require the greatest amount of formal education? A. Psychologist B. Practical nurse
C. X-Ray technician D. Dietitian
- Grade 10 (affective item): Being responsible is as important as being smart. A. Agree B. Disagree

Cognitive items have objectively correct answers, while the "correct" answers for affective items were determined by Ohio State Department of Education staff based on the Ohio Career Education Model's goals and desired outcomes. It should be noted that these tests were specific to the student population and programs in Ohio, and their validity in other settings cannot be assumed.

Evaluation

Approximately 250 program and non-program students from within the school district were tested at each of the four involved grade levels (about 2,000 students in all). These samples were drawn as intact classes, with ten classrooms of program students being selected at each grade level (40 classrooms altogether). Using information such as mean reading scores, IQ scores, grade point averages, and socioeconomic indicators, the program director selected the most comparable possible non-program schools. From these, ten intact classes at each grade level were selected to serve as the control sample. Selection of classrooms was done using an alphabetical list of all teachers' names in the program schools and a similar list of all teachers' names in non-program schools. A random number table was used to select ten teachers in each group, and their classes were identified as members of the two samples.

At the third and sixth grade levels, the entire class of each of the teachers was tested. In grades 8 and 10 only English and social studies teachers were included on the lists, because only these classes were comprised strictly of eighth or tenth grade students. Also, since these classes were re-

quired in those two grades, students of all levels of ability had a reasonably equal chance of being included in each sample. The resulting samples were quite comparable, each containing approximately even numbers of boys and girls, and whites and nonwhites. Each tenth grade sample included about one-fourth academic and three-fourths non-academic students.

Final copies of the test and written directions for administration were supplied to the program director by the evaluator. The local program coordinators administered the tests to both program and non-program students. Tests were administered to both program and non-program students during the week of May 3-7, 1976. In grade 3, test administrators read the questions and response choices aloud to students. In grades 6, 8, and 10, students read the questions and responses themselves.

Results in the Cognitive Domain

The tests results in the cognitive domain were significant at all grade levels. Differences between groups were tested using t-tests calculated at each grade level. the data are shown below, with the seven areas at each grade level ranked according to t-values. Starred values are significant at the .05 level.

THIRD GRADE:

Average percent of items correct:

Program students: 62% (N=262)

Non-program students: 51% (N=278)

<u>Developmental area</u>	<u>t-value</u>
Economics	3.53*
Self	2.91*
World of work	2.89*
Education and training	2.61*
Employability and work adjustment	2.28*
Individual and environment	2.25*
Decision making	0.93

SIXTH GRADE:

Average percent of items correct:

Program students: 58% (N=276)

Non-program students: 51% (N=235)

<u>Developmental area</u>	<u>t-value</u>
Self	2.54*
World of work	2.14*
Education and training	2.15*
Economics	1.19
Individual and environment	0.88
Decision making	0.79
Employability and work adjustment	0.65

EIGHTH GRADE:

Average percent of items correct:

Program students: 44% (N=266)

Non-program students: 32% (N=227)

<u>Developmental area</u>	<u>t-value</u>
Decision making	3.55*
Economics	3.54*
Self	3.35*
Education and training	3.12*
World of work	2.86*
Individual and environment	2.46*
Employability and work adjustment	2.04*

TENTH GRADE:

Average percent of items correct:

Program students: 57% (N=233)

Non-program students: 35% (N=211)

<u>Developmental area</u>	<u>t-value</u>
Education and training	8.92*
Individual and environment	8.34*
Self	7.24*
Decision making	5.06*
World of work	4.18*
Employability and work adjustment	1.44
Economics	1.15

Results in the Affective Domain

The affective domain is widely recognized to be more difficult both to influence and also to measure than the cognitive domain. In light of this, the results of Akron's program are quite impressive. Again, starred t-values are significant at the .05 level.

THIRD GRADE:

Average percent of items correct:

Program students: 65% (N=262)

Non-program students: 61% (N=278)

<u>Developmental area</u>	<u>t-value</u>
Individual and environment	2.03*
Economics	1.91*
World of work	1.56
Decision making	0.79
Employability and work adjustment	0.69
Self	0.40
Education and training	0.21

SIXTH GRADE:

Average percent of items correct:

Program students: 66% (N=276)

Non-program students: 64% (N=285)

<u>Developmental area</u>	<u>t-value</u>
World of work	2.60*
Education and training	1.33
Economics	0.34
Individual and environment	0.24
Self	0.17
Decision making	0.13
Employability and work adjustment	-0.77

EIGHTH GRADE:

Average percent of items correct:

Program students: 47% (N=266)

Non-program students: 43% (N=227)

<u>Developmental area</u>	<u>t-value</u>
Economics and training	2.00*
Economics	1.80*
World of work	1.64
Individual and environment	0.65
Decision making	0.61
Self	0.51
Employability and work adjustment	-0.34

TENTH GRADE:

Average percent of items correct:

Program students: 65% (N=233)

Non-program students: 38% (N=211)

<u>Developmental area</u>	<u>t-value</u>
Decision making	8.30*
Individual and environment	7.58*
Self	6.48*
Employability and work adjustment	5.50*
World of work	4.60*
Economics	3.54*
Education and training	3.41*

Test Performance of Different Types of Students

The above results show that program students learned significantly more than non-program students on the average. But in order to examine how different types of students performed on the test, the evaluator compared program and non-program students' performance within six subgroups: boys; girls; whites; non-whites; academic students (in the 10th grade); and non-academic students (in the 10th grade). The results clearly showed that the program is effective for a wide range of students.

What the Results Mean

The data make it clear that students within the career education program have learned considerably more than non-program students in the areas measured by the tests. In most cases, cognitive differences were larger than affective differences; but in all grades, especially the tenth, program students showed evidence of more learning in both domains. In particular, results at the tenth grade level in the affective domain are notable, both for their rareness in career education program evaluations and for their importance. To be sure, knowledge gains are important preparation for the world of work, but attitude is perhaps even more important, and far harder to influence.

Another factor underscoring the value of this program is the importance of its stated goal areas to human life. Any step toward meeting such goals must be counted worthwhile, particularly when the step can be taken with nearly 14,000 students at a cost per student not exceeding \$30.

Favorable Review by Joint Dissemination Review Panel

The Joint Dissemination Review Panel (JDRP) was established by the Education Division of the Department of Health, Education, and Welfare in 1972. The joint U.S. Office of Education - National Institute of Education (NIE) Panel currently has 22 members, eleven from each agency, appointed respectively by the Commissioner of Education and the Director of NIE. The JDRP meets periodically to review the evidence of effectiveness submitted for a wide variety of federally supported educational products and practices, with effectiveness being the sole criterion for approval by the JDRP. It is charged with the responsibility of ensuring that educational interventions - projects, products, or practices - have been

shown to have positive impacts on their recipients before they are disseminated with federal funds or endorsed by the Education Division.¹

In May 1978, the JDRP reviewed the Akron Career Development Program and approved it for nationwide dissemination.

CONCLUSION

In sum, the evaluation of the Akron career education program in 1975-76 reveals differences in student learning which are consistently higher for program students across many developmental areas and several grade levels. The consistency of results, the program's economic feasibility, and the importance of the goal areas offer strong support that the Akron career education program is an effective and important educational effort.

¹Tallmadge, G.K. The Joint Dissemination Review Panel: IDEABOOK. Washington, D.C.: NIE/DHEW, September 1977.

Appendix A

CAREER EDUCATION LEARNER OUTCOMES K - 10

CAREER MOTIVATION - PRIMARY K-3

SELF - The students will be able to become aware of their interests, abilities, feelings, attitudes and values.

The student will:

- 1.0 Be able to relate his/her capabilities to work and play behavior.
- 1.1 Begin to recognize feelings toward self, peers, adults and his/her immediate environment.
- 1.2 Begin to become aware of the school and community as influence on the individual.
- 1.3 Begin to become aware of the environment best suited to his/her own learning.

ECONOMICS - The students begin to examine the roles of consumers and producers.

The student will:

- 2.0 Begin to understand that paid employment produces goods and services.
- 2.1 Begin to differentiate between consumers and producers.
- 2.2 Become aware of money as a medium of exchange.
- 2.3 Begin to recognize individual needs for product and services.
- 2.4 Begin to see relationships between income, life style and paid employment.

WORK OF WORK - The students begin to examine the scope and nature of work.

The student will:

- 3.0 Begin to recognize the wide variety of work performed in our society.
- 3.1 Begin to recognize why people work and sees relationship between income and life style.
- 3.2 Begin to understand the interdependence among contributing members in the work world.
- 3.3 Begin to recognize a wide variety of occupations.
- 3.4 Begin to recognize the interdependency of workers in his immediate environment.

DECISION MAKING - The students become aware of the process of decision making.

The student will:

- 4.0 Begin to understand that one's value system influences the decision making process.
- 4.1 Begin to recognize personal values.
- 4.2 Begin to establish and explore tentative personal goals as they relate to his/her immediate environment.
- 4.3 Begin to understand the decision making process and has experience in its application.
- 4.4 Begin to understand that a person must accept responsibility and consequences for decisions.

INDIVIDUAL AND ENVIRONMENT - Students recognize roles and relationships between themselves and the home, school, community and work.

The student will:

- 5.0 Begin to develop concept of work and is able to see why people work.
- 5.1 Begin to understand that work relates to the person's physical and social environment.
- 5.2 Begin to form the needs and wants of an individual environment.
- 5.3 Begin to understand and recognize forces that influence and individual environment.

EDUCATION AND TRAINING - Students begin to learn behavior and job keeping skills that must be acquired.

The student will:

- 6.0 Begin to develop an awareness and appreciation for the life relatedness of education.
- 6.1 Begin to recognize that educational experiences are part of life planning.
- 6.2 Begin to understand the relationship between education and work.
- 6.3 Begin to understand that life styles vary and relate to different types of educational preparation.

EMPLOYABILITY AND WORK ADJUSTMENT - Students become aware of how good attitudes and behavior contribute to personal and social success.

EMPLOYABILITY AND WORK ADJUSTMENT - (CONT'D)

The students will:

- 7.0 Begin to develop skills working with peer groups.
- 7.1 Be given opportunities to complete work tasks commensurate with their qualifications.
- 7.2 Begin to understand characteristics of a good worker including personal appearance, manners, respect for others and work skills.
- 7.3 Begin to accept responsibility for the completion of assigned tasks.

CAREER MOTIVATION INTERMEDIATE 4-6

SELF - Students will recognize abilities, interests, aptitudes and achievements.

The student will:

- 1.0 Understand and accept individual uniqueness of their changing interests resulting from learning, growth and maturation.
- 1.1 Begin to affirm aptitudes related to performance.
- 1.2 Begin to express feelings in a socially acceptable manner.
- 1.3 Gain greater awareness of personal characteristics.
- 1.4 Recognize and accept individual differences and uniqueness of others.

ECONOMICS - Students will identify their roles as consumers and producers of goods and services in our society.

The student will:

- 2.0 Identify roles of financial institutions.
- 2.1 Recognize the impact of supply and demand in the economic cycle.
- 2.2 Understand economic concepts of buying, saving and borrowing.
- 2.3 Gain greater understanding of relationships between income, life style and paid employment.
- 2.4 Gain awareness of organizations and social units that provide products and services.
- 2.5 Obtain greater understanding of individual needs for products and services.
- 2.6 Begin to understand the sequence required in making consumer decisions

WORLD OF WORK - Students gain additional awareness of and appreciation for the scope and nature of work and occupations.

The student will:

- 3.0 Begin to understand that specific work tasks can relate to groups of jobs.
- 3.1 Begin to clarify the concept of division of labor.
- 3.2 Gain further awareness that worker traits relate to aptitudes.
- 3.3 Continue to understand the variety of work performance by themselves, parents and other family members.
- 3.4 Begin to gain awareness of the relationship between technological change and occupational change.
- 3.5 Gain understanding of how the performance of occupations meets the needs of the community.
- 3.6 Gain further understanding and acceptance of the interdependency of occupations.
- 3.7 Realize what is involved in growth, behavior, training and rewards of persons engaged in specific occupations.

DECISION MAKING - Students become aware of the process of decision making.

The student will:

- 4.0 Understand that the decision making process is influenced by one's value system.
- 4.1 Gain an awareness that flexibility is essential in formulating plans.
- 4.2 Further explores tentative personal goals as they relate to his/her immediate environment.
- 4.3 Be provided with additional opportunities to participate in decision making situations.
- 4.4 Accept outcomes of personal decisions.

INDIVIDUAL AND ENVIRONMENT - Students recognize roles and relationship between themselves and the home, school, community and work.

The student will:

- 5.0 Accept work as a way of maintaining, improving or changing his/her environment.
- 5.1 Recognize and accept that work is related to the physical and social environment of the individual.

INDIVIDUAL AND ENVIRONMENT (CONT'D)

- 5.2 Recognize the implications of working with and without supervision independently and with others.
- 5.3 Identify major roles workers have in influencing the environment.

EDUCATION AND TRAINING - Students gain greater understanding, acceptance and affirmation on behavior and job keeping skills that must be acquired.

The student will:

- 6.0 Develop knowledge on how adults continue to learn.
- 6.1 Understand the relationship of educational training and life planning.
- 6.2 Recognize the significance of language, computational and reasoning development and the mastery of content knowledge as they relate to life planning.
- 6.3 See relationship between reading, writing, number skills and science and their practical applications to some occupations.

EMPLOYABILITY AND WORK

ADJUSTMENT SKILLS - Students become aware of, accept and affirm that certain behaviors are expected and required for certain occupations and that these behaviors can be acquired.

The student will:

- 7.0 Gain further motivation to participate in social and work settings.
- 7.1 Perform tasks with or without supervision and be able to analyze quality and performance.
- 7.2 Understand the concept of leadership in helping the accomplishment of a task with greater efficiency.
- 7.3 Develop and further improve good work habits and attitudes necessary to complete work assignments.
- 7.4 Recognize that there are certain responsibilities to oneself and others in accepting a task or job.
- 7.5 Gain greater understanding on how to cope with failure when a task is attempted but cannot be completed due to lack of knowledge skills or background.

CAREER ORIENTATION

GRADES 7-8

SELF - Students will recognize abilities, interests, aptitudes and achievements.

The student will:

- 1.0 Have interests, aptitudes and values further clarified.
- 1.1 Utilize his/her self understanding in pursuing career information in the U.S.O.E job clusters.
- 1.2 Develop further knowledge of aptitudes needed for successful performance in the occupation of his/her interest.
- 1.3 Begin to clarify career aspirations based upon greater self understanding.
- 1.4 Affirm personal and social beliefs as extension of current achievement.
- 1.5 Gain greater understanding and acceptance that individual changes occur through maturation as a result of the learning and growth process.
- 1.6 Begin to explore his/her unique psychological changes, capabilities, and limitations.
- 1.7 Recognize that self understanding is related to one's values as they are unique to each person.
- 1.8 Recognize the need for a personal value system.

ECONOMICS - Students will gain greater awareness, acceptance and affirmation of the roles of citizens as consumers and producers of goods and services.

The student will:

- 2.0 Identify financial institutions and their roles in our society.
- 2.1 Understand the implications for career selection and life style.
- 2.2 Understand relationships between earning, spending and saving.
- 2.3 Begin to gain knowledge regarding non-salary earning.
- 2.4 Understand social benefits associated with various careers.
- 2.5 Understand economic rewards and an exchange for work tasks completed.
- 2.6 Gain greater understanding of cost involved in terms of time, education and training to enter into various occupations.
- 2.7 Understand economic concepts such as buying, selling, saving, and borrowing.

ECONOMICS (CONT'D)

The student will:

- 2.8 Have a greater awareness and understanding of the industrial, business and labor base of the economic system.

WORLD OF WORK - Students become aware of, accept and affirm the scope and nature of work and occupations.

The student will:

- 3.0 Understand that there is a wide variety of occupations.
- 3.1 Understand that occupations can be classified into fifteen clusters for examination.
- 3.2 Become aware of jobs in his immediate community.
- 3.3 Examine the level of jobs found in each of the fifteen clusters.
- 3.4 Obtain an appreciation of the contribution of workers in his immediate community.
- 3.5 Recognize interrelationship of worker to worker, occupation to occupation and worker to occupation.
- 3.6 Obtain opportunity for field observations to view occupations in local, business, industry, labor and professional settings.
- 3.7 Obtain an awareness of occupational information resources.
- 3.8 Learn what is involved in development, growth, behavior, training and rewards of persons engaged in specific occupations.

DECISION MAKING - Students become aware of, accept and affirm the importance of the rational process of decision making.

The student will:

- 4.0 Be able to describe the role of values in the decision making process.
- 4.1 Be able to better understand his/her personal values and relate them to selling objectives.
- 4.2 Be able to establish tentative personal goals and realize that some goals are not attainable.
- 4.3 Be able to understand that a process can be applied in making decisions.
- 4.4 Be able to utilize the process of decision making as it relates to exploring occupations.

DECISION MAKING (CONT'D)

4.5 Be able to recognize that previous actions on his/her behalf will affect present and future decisions.

4.6 Be able to accept outcomes of a personal decision

INDIVIDUAL AND ENVIRONMENT - Students become aware of and affirm roles in relation to home, school, community and work.

The student will:

5.0 Be able to recognize his/her individuality in relationship to the environment.

5.1 Recognize the work in relation to the physical and social environment of the individual.

5.2 Recognize social, economic, educational, and cultural forces that influence the environment.

EDUCATION AND TRAINING - Students become aware of, accept and affirm the importance of job seeking and job keeping skills.

The student will:

6.0 Understand relationship between learning achievement and further occupational aspirations.

6.1 Accept the importance of doing well in school subjects as preparation for future employment.

6.2 Gain improved perception of relationships between school subject matter as it relates to occupations.

6.3 Understand that varying life styles require different types of educational preparation.

6.4 Realize that proficiency in certain subjects are necessary to enter certain occupations.

6.5 Have a greater appreciation of the importance of the mastery of content knowledge to future life planning.

EMPLOYABILITY AND WORK ADJUSTMENT - The students become aware of, accept and affirm that certain behaviors are expected and required for certain jobs and that these behaviors can be learned.

The student will:

7.0 Be able to know characteristics that make for cooperative working relationships with other members of the group.

7.1 Have knowledge of methods of communicating with others to complete work tasks.

EMPLOYABILITY AND WORK ADJUSTMENT (CONT'D)

The student will:

- 7.2 Recognize differences in responsibility when working without supervision as compared to working with supervision.
- 7.3 Be able to relate self in the selection and performance of duties.
- 7.4 Be able to fill out a job application.
- 7.5 Be able to list personal qualities, aptitudes, and interests and relate to jobs in the Dictionary of Occupational Titles.

CAREER EXPLORATION

GRADES 9 - 10

SELF - Students become aware of, accept and affirm interests, abilities, feelings, attitudes and values.

The student will:

- 1.0 Use personally measured aptitudes to access and explore related occupational information.
- 1.1 Use understanding about personal abilities, interests, aptitudes, and achievements to identify tentative areas for career exploration.
- 1.2 Plan a course of study based upon information about personal abilities, interests, aptitudes, and achievements.
- 1.3 Explore the effects that physical assets and liabilities can have on career development.
- 1.4 Examine changes that occur through maturation.
- 1.5 Identify characteristics which differentiate personal uniqueness from uniqueness of others.
- 1.6 Identify unique characteristics of other people.

ECONOMICS - Students become aware of, accept and affirm the role of consumer, producer and citizen.

The student will:

- 2.0 Understand the political nature of a fluctuating economy.
- 2.1 Become aware of principles used in predicting economic trends in the community, state, and nation.

ECONOMICS - (CONT'D)

- 2.2 Understand the relationship among economic macro-systems.
- 2.3 Be aware of occupational areas which the student considers appropriate to desired life styles, abilities, and interests.
- 2.4 Recognize the possible responsibilities and rewards (benefits) in chosen occupational plans for the future.
- 2.5 Indicate social and economic benefits associated with a career choice.
- 2.6 Identify an occupational area which is appropriate to one's desired life style.
- 2.7 Identify the costs involved in terms of time, education, and training when selecting a career.
- 2.8 Understand factors which influence the desire for certain social and economic rewards.
- 2.9 Develop knowledge of investment institutions and their relationship to economic environment.
- 2.10 Understand the relationship among economic macro-systems and their applications to career planning.

WORLD OF WORK - Students become aware of, accept and affirm the scope and nature of work and occupations.

The student will:

- 3.0 Know the procedure to gain entry into tentative career choices.
- 3.1 Explore characteristics of tentative career choices.
- 3.2 Examine factors that may influence verticle or horizontal mobility within a career.
- 3.3 Know the detailed characteristics of a chosen career through "hands-on" experiences in the fields of a personal choice.
- 3.4 Evaluate employment opportunities in a chosen career area based on local, regional, and national trends considering current technological changes.
- 3.5 Identify a worker trait group and analyze the common and unique characteristics of jobs within that group.
- 3.6 Understand that rewards will vary with the requirements and responsibilities of the job.
- 3.7 Recognize that mobility of careers can cause changes in an individual's life style.

WORLD OF WORK - (CONT'D)

- 3.8 Become aware of any life-style conflicts with a chosen career.

DECISION MAKING - Students become aware of, accept and affirm the importance of the rational process of decision making.

The student will:

- 4.0 Recognize that values are an integral part of the decision making process.
- 4.1 Understand the individual, personal nature of values.
- 4.2 Understand that values are expressed in a person's behavior.
- 4.3 Identify and clarify personal values.
- 4.4 Establish goals by categories.
- 4.5 List both short-term and long-range goals
- 4.6 Be aware that time and circumstance can cause goals to change.
- 4.7 Identify goals and collect information pertinent to those goals.
- 4.8 Be aware of and accept the risks that affect all decisions.
- 4.9 Become proficient in identifying and using resource information in making career decisions.
- 4.10 Know and utilize the decision making process.
- 4.11 Select a course of study that is unique - the student's own.
- 4.13 Make a tentative career decision and investigate the selection.
- 4.14 Apply career attributes such as requirements, conditions, rewards, and characteristics to career decisions.
- 4.15 Demonstrate willingness to accept outcomes of personal decisions.

INDIVIDUAL AND ENVIRONMENT - Students become aware of, accept and affirm role in relation to home, school, community and work.

The student will:

- 5.1 Recognize that social institutions and organizations maintain and generate careers.
- 5.2 Understand the relationship between roles and their settings.

INDIVIDUAL AND ENVIRONMENT (CONT'D)

The student will:

- 5.3 Identify how family, school, peer group, church, community, and work experience have influenced development.
- 5.4 Become aware that occupational roles are ranked in a status hierarchy.
- 5.5 Use knowledge that other people influence personal goals.
- 5.6 Recognize skills that permit students to evaluate discrepancies between goals and the influence of environment.
- 5.7 Be aware of those skills needed to evaluate self in relationship to environment.
- 5.8 Use the concepts of role and role element in analyzing an occupation.
- 5.9 Recognize that roles have status and that status is a form of social reward.
- 5.10 Experience an occupational role reflecting personal choice.

EDUCATION AND TRAINING - Students become aware of, accept and affirm the importance of job seeking and job keeping skills.

The student will:

- 6.0 Become aware that learning to learn is a skill.
- 6.1 Develop an appreciation of learning and its relationship to living.
- 6.2 Understand that learning is also a lifetime activity.
- 6.3 Illustrate how participation in school activities can relate to selected career areas.
- 6.4 Identify skills acquired in school which are relevant to selected occupations.
- 6.5 Understand the in-school educational steps necessary to qualify for selected occupations.
- 6.6 Understand the different types of educational preparation that are necessary for various careers.
- 6.7 Understand the relationship between levels of education and levels of employment.
- 6.8 Understand the different types of educational preparation that are necessary for various careers.
- 6.9 Become aware of a relationship between in-school and on-the-job education.

EDUCATION AND TRAINING (CONT'D)

The student will:

- 6.10 Select an appropriate high school curriculum in keeping with tentative career goals.

EMPLOYABILITY AND WORK ADJUSTMENT - Students become aware of, accept and affirm that certain behaviors are expected and required for certain jobs and that these behaviors can be acquired.

The student will:

- 1.0 List characteristics that may have to be compromised when working cooperatively in a group.
- 1.1 Explain differences in responsibility when working alone compared with working as a part of a group.
- 1.2 Explain ways of communicating with others within a group to complete a task.
- 1.3 Recognize differences in responsibility when working with supervision in comparison to working without supervision.
- 1.4 Recognize the difference between entry level jobs and future mobility within that job cluster.
- 1.5 Fill out job applications.
- 1.6 List personal qualities, aptitudes, and interests and relate to jobs in the D.O.T.
- 1.7 Recognize and appreciate a job that is well done by either oneself or others.
- 1.8 Recognize that a job well done is rewarded by self-satisfaction as well as by recognition from others.
- 1.9 Give several examples of people with different interests and identify reasons to account for differences.
- 1.10 List experiences that cause change or modification of values and explain reasons for the need to change.

Appendix B

GETTING OFF THE GROUND (The Program Planning Process)

Fuel Supply

A plane cannot get off the ground without fuel, and the fuel for a successful collaboration effort is a serious commitment by education and the community to apply their financial, physical, and personnel resources to complete the flight plan. If the commitment is superficial, then the collaboration will be short lived.

Finding the School Pilot

Once the decision has been made that the school system will be involved in a collaborative program of Career Development, program leadership for that effort must emerge.

An educator who can bring about change is the person to head the program. Commitment to the concepts of Career Education must also be a prime qualification for choosing that person. Training in the area of guidance and counseling provides valuable skill for the development of a Career Education program. Knowledge of curriculum and the total educational philosophy of the school system are other important assets.

If these qualifications are found in a staff member who is also active in community organizations or who has a strong work experience background, that person is a logical choice for program leadership.

School Ground Crew

A successful flight must begin with a capable ground crew working as a team. All departments of the school staff must be involved as participants in a collaborative Career Development program.

Curriculum specialists, guidance counselors, vocational educators, academic teachers, administrators, and special program leaders -- all these must identify their needs and goals which relate to Career Education and which must be responded to in the implementation of a collaborative program.

It will be helpful if these needs and goals can be jointly refined and finally determined by interaction between school people and representatives of various community sectors.

Training for Collaboration -- School Personnel

In-service training for all members of the school staff is essential. Initial training sessions must be used to develop an awareness of what Career Education is and to demonstrate that community resources must be part of a well-balanced Career Education program. After staff members have this awareness, they will be able to see their personal and departmental roles in the program.

These in-service meetings should also be used to establish the communication linkages within the school system that are needed for a successful program. Bringing in community resource persons to help in the planning and implementing of in-service sessions will enhance the possibilities for future success in collaboration.

Moving Toward Collaboration

As suggested above, prerequisites for collaboration in Career Education are that school people have an understanding of the Career Education concept and are communicating among themselves. It will also be helpful if, as previously mentioned, some lines of communication have been established with community persons through their participation in planning and implementing in-service meetings and in joint school-community determination of program needs and goals for Career Education.

Success in school-community collaboration will also depend a great deal on affirmative answers to these questions:

1. Is the school administration committed to Career Education and does it have the necessary resources -- financial, physical, and human -- to carry out a meaningful program?
2. Does the school leadership for the program have effective public relations skill?
3. Is there a good existing relationship between the local school system and the community?

Atmospheric Conditions

Collaborative efforts among business, education, industry, labor and other community sectors are not easy to accomplish nor do they occur overnight.

To establish collaboration, certain characteristics should prevail in a community. If not all of them are present, step-by-step development of collaborative programs in Career Education can help to bring them about. The proviso is that mutual respect for the viewpoints of all parties involved be displayed in each step of the collaborative process.

The following are the desirable community characteristics for successful collaboration:

- pride in the school system and confidence in its administration;
- students who reflect credit on the school system;
- past community-wide support for the total school system and other evidence of allegiance to the community and its welfare;
- confidence on the part of business, labor, industries, and other segments of the community that they have a voice in educational policy and will be listened to;
- actual financial support to the schools for various efforts;
- evidence that key business, labor, and other community representatives are willing to provide time for personnel to work with schools in improving educational services;
- some previous experience in working together on a number of projects.

Enlisting the Co-Pilots

Initiative for collaboration may come from the schools, or it may come from one or more community organizations. It may come from both directions. Perhaps a number of community and school programs already exist and could be incorporated in a Career Education program. Each community has its own unique situation that will necessarily serve as the place to begin.

If the formal organization of a Career Education program has begun with the schools, the following suggestions may be useful in undertaking collaboration with the community:

Make direct contact with the organizations or persons that can rally the leaders of all community segments in support of Career Education. Those organizations and those persons may be different in every community. However, the Chamber of Commerce; civic clubs such as Rotary, Kiwanis, etc.; public agencies; professional associations; local government agencies; as well as individual leaders of business, labor, and industry are all possible starting points.

Inform the community leadership about what Career Education is, what it hopes to accomplish, and why the school system feels it is necessary. Convince them that it has merit and that collaboration will help to fulfill specific objectives in programs related to assisting students in school-to-work transition.

What are methods of informing the community leaders who can make decisions about participation in the program?

Personal letters can invite them to attend a special program where they will hear presentations on Career Education. Since school board members are also community leaders, they too can be invited.

Representatives of the school system can ask to speak about Career Education at meetings of community organizations to which they belong, as well as to others whose support is needed.

Educators can arrange appointments to talk to individual community leaders.

If Career Education is in operation but needs expansion, community leaders can be invited into classrooms to see demonstrations; once there, they may find themselves drawn into the activities. They may also be invited to attend and to participate in in-service meetings.

Listen attentively to the suggestions and criticisms made by the community leadership and implement their suggestions wherever possible. If schools really want community input and feel that collaboration is necessary, the school system must share decision-making power with community leaders in areas of the latter's expertise.

After obtaining the commitment of community leaders, have them select the key people in their respective organizations who will work with the schools in implementing the Career Education program. After this step, collaboration on specific informational and program activities can begin.

Training for Collaboration -- Work Sector Crew

A key factor in an effective on-going program in Career Education is training community participants for the job to be done. Steps in the process are:

developing an awareness of what Career Education is;
determining the needs and goals of their organizations for Career Education;
outlining how the work of their organizations can be related to school curriculum;
developing training programs for community participants in specific Career Education programs.

Developing the Flight Plan

Getting the flight off the ground requires that the co-pilots have an established destination and have selected the route to follow.

Together they can plan specific objectives and outline the program and activities that will take place. Close cooperation and coordination, as well as mutual sharing of responsibility must prevail.

Major educational objectives for a collaborative Career Development program are not difficult for community participants and educators to agree on. The route to be traveled is dependent on values and objectives of the various participating groups.

All expressed concerns must be responded to, but the biases must be filtered out, if the flight is to remain on course. It is at this point that meaningful collaborative programs can be developed.

DEVELOPMENTAL CAREER GUIDANCE PROJECT

Pima County, Arizona

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American Institutes for Research

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Pima County Developmental Career Guidance Project

30 June 1978

The information reported herein was obtained pursuant to contract no. 300-77-0303 with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to document information according to their observation and professional judgment. Consequently, information, points of view, or opinions stated do not necessarily represent official Office of Education position or policy.

FOREWORD

This activity description was prepared as part of a study conducted by the American Institutes for Research (AIR) under contract No. 300-77-0303 to the U.S. Office of Education. The purposes of the study were to identify evaluated, exemplary career education activities; to recommend identified activities to the Joint Dissemination Review Panel (JDRP) of the Education Division, Department of Health, Education, and Welfare; to prepare descriptions of identified activities; and to develop a handbook with six models for evaluating career education activities.

The criteria established for screening activities in this study intentionally limited choices to those whose evaluation reports presented evidence of effectiveness. Close attention was given to the soundness of evidence in evaluation reports. A minimum requirement for this evidence of effectiveness was that some comparison standard be provided so that gains made by the students participating in the activity could be attributed to the impact of the activity. After confidence in the evidence of effectiveness was established, further criteria were applied. These criteria included consistent relationships between a well-planned assessment of needs, a statement of desired student outcomes, the selection of instruments, and the procedures used in data collection, management, and analysis.

This document describes one of ten projects that was selected from among 250 submitted. It presents one locale's way of successfully implementing a career education activity, the results of which are educationally significant. Although the description reflects an activity developed in response to local needs, other school districts with similar needs may wish to adapt parts or all of it according to their own circumstances and philosophy.

We are especially grateful to the staff of the Pima County Developmental Career Guidance Project and to the many school staff members who generously gave their time to answer questions from AIR site visitors. They extended a special kind of hospitality and spared no amount of effort to provide the information necessary to prepare this description. They made it possible for the site visitors to see the program in action, as well as to understand the philosophy and strategies that underlie its operations.

Pima County Developmental Career Guidance Project materials are judged to be free of bias with regard to race, sex, age, income levels, and type of occupation. The Media Review Committee carefully analyzes all potential purchases for absence of bias.

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PROJECT OVERVIEW

- TITLE & LOCATION: Pima County Developmental Career Guidance Project
2302 E. Speedway, Suite 110
Tucson, Arizona 85719
- TYPE: Infusion
- PROJECT DIRECTOR: Joyce McKay
Ph: (602) 327-6231
- SETTING: Pima County is a large and extremely diverse segment of southern Arizona, encompassing a major city (Tucson), vacant and agricultural lands, and Indian reservation lands. The overall county population is approximately 80% white and 20% Mexican-American, American Indian, and other minorities. Most white families live within the city and are employed in manufacturing and other occupations. Most minority families live in the more rural areas and are employed in agricultural and related occupations. The county's 155 schools serve over 90,000 students.
- STAFF: The project staff consists of approximately 50 people, including a project director, about 30 guidance specialists, and specialists in other fields, plus support staff.
- GOAL: The ultimate goal of this project is to help all K-12 students in the county grow in the areas of self awareness, educational awareness, career awareness, economic awareness, decision making, beginning competency, employability skills, and appreciations and attitudes.
- EVALUATION DESIGN: The impact of this project on student growth was assessed in 1974-75 by testing comparable groups of treatment and control students on a posttest only basis. The grades tested were 4-12.
- MATERIALS: Materials used in this project consist of an extensive library of career education resources. A series of 24 instructional units developed by the state of Arizona is used, together with a collection of commercially developed media and materials. This collection is continually updated by the project's Media Review Committee.
- COSTS: The major project costs are staff salaries and the procurement of media and materials.

PROJECT DESCRIPTION

The Developmental Career Guidance Project of Pima County, Arizona, is one of the most comprehensive projects in the entire field of career education. It spans all grade levels, serves a huge and disparate geographic area, and reaches nearly 100,000 students. The project influences every type of subject matter and is taught through a variety of approaches.

But the project does have a definable model of service delivery to offer to districts interested in duplicating its proven success. Its unifying threads are its administrative structure and its emphasis on the student as an individual person. It is no accident that this career education program is known by the title of "career guidance." The project staff believes that improving each student's self-awareness and self-esteem, plus his or her skills in decision making, are fundamental to a satisfying career choice. These two components of career education (self-awareness and decision-making skills) are especially emphasized in the elementary years, but are interwoven with the third (career knowledge) throughout the K-12 years.

PROGRAM DEVELOPMENT

The Pima County Developmental Career Guidance Project is among the handful of career education projects in the nation which has made a serious long-term commitment to career education with only incidental federal funding. A \$10,000 grant in the summer of 1974 under the Educational Professions Development Act was used to develop a vocational math textbook. All other direct funds have been state and local. The annual direct and in-kind funding for this project amounts to over \$1,000,000, clearly a genuine commitment by the local community.

Pima County and Its Schools

The Pima County Developmental Career Guidance Project is a program involving eleven cooperating public school districts in Pima County, Arizona. The eleven districts contain, in all, 155 schools: 104 elementary schools, 34 junior high schools, and 17 high schools. About 93,000 students attend these schools.

Pima County is geographically very large, over 100 miles in length and about half that in width. This area encompasses a highly diverse population. The city of Tucson, where the Project's central office is located, is a highly urbanized area (though no portion of it could be characterized as "inner-city" in the usual sense). Its population is largely white and middle class, with a

high proportion of elderly retired people. Manufacturing, medical services, governmental services, leisure and hospitality services, and agricultural processing firms are employers of large numbers of the labor force. The city of Tucson is the region served by the largest of the eleven school districts. This district alone serves about 80,000 students, 85% of the students in the county. The median income in Tucson is about \$11,950.

The ten smaller districts serve populations with a higher proportion of non-whites, particularly Mexican-Americans and American Indians. The areas served by these districts tend to be more rural, including farming and ranching areas and Indian reservation land. Agricultural occupations provide much of the area's employment. Median income of these areas is lower than in Tucson, around \$7,750, and the unemployment rate is higher than Tucson's.

The Development of Long-Range Career Education Goals

The Project began operating under state funding in 1971. At that time the Arizona State Department of Education was beginning a two-year development process to define goals for career education on a statewide basis. Six long-range career education outcomes had already been identified by educational and community leaders. These six outcomes were:

1. Students will achieve an increased awareness and understanding of interests, aptitudes, and responsibilities as these relate to various careers.
2. Students will demonstrate increased interests and achievement in the educational program emphasizing communications and basic skill areas.
3. Students will understand the world of work and its impact on society.
4. Students will be able to make decisions related to career areas being explored.
5. Students will possess entry-level skills upon exiting from the formal education program.
6. Students will develop an understanding and appreciation of the value of continual learning, the arts, and leisure qualities of life.

The development of goals was intended to specify and articulate the kinds of knowledge and attitudes which students should develop across their K-12 years in order to achieve the six desired outcomes. The development process first involved the staffs of all career education projects in Arizona, and later included the review and reactions of more than 300 teachers and 450 community representatives from across the state. The community representatives included mayors,

council members, board of education members, legislators, labor leaders, school superintendents, chamber of commerce members, PTA officials, civic group leaders, and high school students. The revised goals were organized into a matrix, which appears as Appendix A.

The Pima County Project and representatives of the local community offered considerable input to this development process. When the matrix had been revised and completed, the Pima County Project adopted these statewide outcome and goal statements as the focus and purpose of its own activities. In 1972-73, a local third-party evaluation was conducted based on these outcomes and goal statements. The evaluation tests and procedures developed at that time are still in use today (with minor modifications) to measure student attainment of the goals in the Arizona Career Education Matrix.

The matrix in Appendix A shows that goals have been developed for four grade level groups: primary (K-3), intermediate (4-6), junior high (7-9), and senior high (10-12). These goals are divided under eight topics, or important goal areas:

- Self-awareness
- Educational awareness
- Career awareness
- Economic awareness
- Decision making
- Beginning competency
- Employability skills
- Appreciations and attitudes

MATERIALS AND ACTIVITIES

What Is the Pima County Developmental Career Guidance Project?

The Pima County Developmental Career Guidance Project is a state-funded, interdistrict organization which coordinates or delivers a variety of career education services to all county schools. The Project has several major components: (1) direct services to students; (2) services to school staffs who need help in planning or implementing career education activities; (3) selection and maintenance of up-to-date career education media and materials for use by all county school staffs; (4) coordination of community resources such as volunteer aides, speakers, and work experience/exposure sites; (5) conduct of parent discussion groups; and (6) a variety of other services, such as career education

implementation unit development and services to special education teachers.

This complex, multi-faceted project has been built around the needs of the Tucson area. To give the reader an idea of how broad the concept of career education is in Pima County, the project's own descriptive brochure is found in Appendix B. Most adopting districts would probably not want to develop all the components listed; on the other hand, the list may perhaps stimulate new understanding regarding the meaning and possible scope of the infusion approach to career education.

What Activities Are Used With Students?

The approach to career education in Pima County is often referred to as "infusion," that is, the continued demonstration of any and all relationships between academic subjects and particular occupations or the world of work as a whole. Infusion is not so much a change in the content of school subjects as in their focus and intent. For example, teaching addition may be done on "restaurant checks" in a simulated coffee shop instead of on blank paper. Because of the nature of infusion, and because of the wide array of career education resources which the Pima County project has made available for school staff to choose among, specific activities which make up the program for any one student are difficult to trace. A few examples may help the reader understand the nature of the program better, but it should be remembered that these are representative examples, not universal student experiences.

K-6 Students. Elementary level activities focus on self awareness, self esteem, and an introduction to career areas. For example, in one school, a "Care Center" was instituted as a resource for all K-6 students. Records and record players, books, games, bulletin board materials, and other activities were available to help students learn about the two Themes of the Month, one concerning an occupational area and the other concerning an affective area. Example areas examined in one month were careers in the Transportation cluster and problems in dealing with crisis situations (death, divorce, illness). Students used the Center both for class assignments and also independently to investigate careers and explore or express feelings. The Center staff, parent aides, or the school counselor were available at all times to work with students; also, students were encouraged to express their feelings in a Feelings Box, where they could insert notes telling their feelings and asking to talk with a staff member

if they wished. The focus on each month's occupational cluster culminated in a full-day Career Day, with several speakers coming in to discuss their careers.

7-9 Students. Activities at this level focus on greater study of careers and use of decision making skills. In one eighth grade class, a unit on careers required students to complete a notebook consisting of 12 exercises. These were:

- a values-appraisal exercise in which students rated (on a 1-to-10 scale) activities of importance to them individually;
- a job interest exercise in which students checked which of 10 activities under various job clusters they would rather perform;
- a self awareness exercise in which students indicated which ones of 150 adjectives best described them;
- an exercise in good listening which tested the student's ability to hear, understand, and remember information given orally by a "job supervisor";
- an Occupational Study Guide asking specific questions which students answered concerning the job(s) of their choice;
- a desired qualities exercise in which students ranked 12 qualities as to how much they wished to possess of each (attributes such as health, peace, power, goodness, and attractiveness);
- a data-people-things exercise in which students selected a response representing one of these preferences in 20 situations;
- a jobs decision making exercise in which students listed 10 careers of interest together with characteristics of each career (education required, whether they involved other people or not, risk factor, preferred size of organization, and other factors of the student's choice);
- a What I Like About Me exercise in which students chose which of 60 positive attributes described them;
- a feelings exercise in which students named their three most common feelings;
- a Where I Want To Be ladder in which students forecasted which of their desires in life they might fulfill in five years or in their lifetimes; and
- a Brave New World exercise in which students chose, as a group, which 5 of 11 viewpoints on major political issues would be written into their new "constitution."

Other optional values clarification/decision/making/job exploration exercises were also available to students.

10-12 Students. Activities at this level are aimed at giving students actual exposure to work. For instance, a communications laboratory of one high school was the center of radio/TV/film/newspaper activities on campus. Students learned basic technical skills in one or more of these areas and then produced their own films, broadcasts, and newspaper. This involved covering campus and community activities, interviewing people on and off campus, visiting local TV and radio stations and newspapers to observe and participate in a real setting, and preparing original material (such as a videotaped spoof of television advertising).

Because of the nature of infusion, it is difficult to say how much career education a student might receive in any period of time, but an overall average is about one hour per day at each grade level.

Resources Available to School Staffs

The basic resource for career education activities is the project's extensive collection of career education media and materials, located at the project's several offices throughout the county and available to all county teachers and counselors. The project constantly maintains and updates an extensive library of career education media and materials, describing about 3,000 different career education activities, for use by all Pima County teachers, including 24 state-developed instructional units. Its Media Advisory Committee, made up of teachers, counselors, and project staff members representing different county areas, carefully screens all incoming materials for effectiveness and for absence of race or sex bias. The Committee's recommendations are valuable for local school purchasing decisions as well as project decisions. These materials, speakers, and activity sites have been available for all local school personnel to select from according to the needs of their students.

The 24 instructional units produced in Arizona have undergone formalized field testing and evaluation. In addition, the project has prepared and regularly updates an extensive Media Catalog. This consists of annotated lists of career education materials and media available through the project, grouped for the K-6, 7-9, and 10-12 levels. Certain materials which would be valuable for inservice training are also included, as are suggestions for making use of various materials. A guide to use of the Catalog and some sample listings are given in Appendix C.

Since materials and activities used are so diverse, physical facilities needed for this program vary widely. In general, ordinary classroom layouts and equipment are used; the innovative features of this program revolve around how facilities are used more than what is used. Where special facilities are required, the staff has typically looked to the community to provide them.

PARENT AND COMMUNITY INVOLVEMENT

A major project resource is the parents and community members whose participation in the schools is coordinated through the Community Resource Center. The Center's Community Resource Advisory Council consists of 18 community members who work with Center staff members to increase community involvement in career education. The effort has been aimed at including parents, community organizations, and all segments of the world of work as collaborators in education, who bring their own unique and varied contributions and viewpoints, not mere supplementers who do what educators tell them to do. Business and community group members act as speakers, resource persons, and work exposure/experience site hosts, under overall coordination by the Community Resource Center and the Advisory Council. In addition, these people participate in seminars and work exposure activities for teachers and counselors as part of the latter's inservice training.

Involvement of parents is a particular focus of the project, through the Community Resource Center. Experiences offered at the Center include discussion groups on career education and on effective parenting, leadership training, and opportunities to participate in school activities as teacher aides, speakers, or resource persons. Project staff members are fully cognizant of the fact that parental expectations influence students' career selections substantially. Staff members work to increase participation in the ongoing parent groups each year.

STAFFING AND MANAGEMENT

Project Personnel

Career education in the county is coordinated and facilitated by the project director and staff. The staff consists of three assistant project directors/area directors, approximately 30 guidance specialists, three Community Resource Center staff, two staff development specialists, and about 15 support staff. In addition,

specialists in specific areas (special education, rural schools, work education, and selective enrichment) work under project auspices and number about seven people.

Project policies are set by an 11-person governing board consisting of one district official from each of the 11 districts, operating under an interjurisdictional agreement. However, principal funding for the project has been from the state of Arizona since the project's beginning.

Project Director. Liaison with the board is a major function of the project director, in addition to her overall administration, personnel, funding, and evaluation concerns. The director works out of the central project office, located in Tucson, which also houses the staff members of the Community Resource Center, a media secretary, two staff development specialists, several guidance specialists, and a support staff of secretaries, a bookkeeper, a printer, and project assistants. Three area offices, located in smaller districts, are each staffed by an assistant project director, a staff of guidance specialists, a secretary, and one or more project assistants.

Guidance Specialists. The "front line" persons in Pima County are the project's guidance specialists. They are usually assigned three to four schools apiece, visiting each on a weekly basis. Numbering about 30 across the four offices, guidance specialists are chiefly responsible for helping teachers and counselors infuse career education and career guidance activities into the classroom. Often the guidance specialists help conduct these activities themselves, especially career guidance activities and particularly at the elementary level. In fact, the degree of project staff involvement directly in the classroom is a significant feature of this project when compared to similar types of approaches to career education across the country.

The specific functions of the guidance specialists are to:

- work with classroom teachers in designing curriculum plans that will integrate career education into the existing curriculum
- assist teachers in the classroom implementation of planned career guidance units and activities
- conduct consultation sessions with teachers to develop mutual understanding of students and student needs for career guidance and education
- assist teachers in conducting classroom or small group guidance sessions designed to explore pupil motivation, behavior, achievement, goals, and problems
- assist teachers and school personnel in developing and utilizing a parent

participation program: this might include holding parent conferences to discuss pupil motivation, achievement, etc.; conducting parent study or discussion groups; and involving parents as resource speakers or aides in the career education process

- plan and conduct appropriate inservice training for teachers in areas of concern to the career guidance program and to the teachers
- demonstrate the materials and methods of career education to classroom teachers
- assist teachers in planning and implementing exposure activities in career education: such activities may include development and use of hands-on materials or kits; development of simulated or real job experiences; assisting in the planning of job site visitation or field study trips; and assisting in the use of resource speakers and community resources as part of the planned career education activities
- participate in the evaluation of the current project and the planning of future career education projects.

Staff Development Specialist. The staff development specialist positions were set up in 1977-78, when it became clear that for some topics, county-wide workshops were a better approach than building-level or district sessions. The staff development specialists are actually guidance specialists who spend full time on planning and operating these workshops, leaving the more individualized work with building staffs to the guidance specialists.

Community Resource Center. One of the project's major activities is its Community Resource Center. The three full-time Center staff members coordinate a wide range of contacts between the schools and the community, including guest speakers, parent volunteers, summer businessman/teacher seminars, and work exposure/experience sites for students.

Staff Qualifications

All guidance specialists, staff development specialists, and Community Resource Center staff members are certificated teachers, since they may conduct activities in the classroom. Persons chosen as guidance specialists generally hold advanced degrees in counseling and demonstrate commitment to and enthusiasm for the promise of career education. Most have been in the school system as teachers or counselors for a year or more, though some have been chosen from newly certificated teachers. All have varied kinds of work experience in addition to their work within school systems.

Competencies of guidance specialists are described as: (1) the ability to serve as a career education/career guidance consultant to classroom teachers;

(2) the ability to provide career guidance to students and parents; (3) the ability to work cooperatively with other school and professional personnel; (4) the ability to work with representatives of the business community in the development of career guidance activities; and (5) knowledge of the goals of career education. Training for new guidance specialists consists of intensive classroom sessions combined with teaming with more experienced staff members.

Management Strategies

A notable feature of the Pima County project is the spirit of cooperation between the project staff and building staffs. Project services are offered throughout the county, coordinated by one central office and three area offices. However, no school or teacher is required to use project services, and in fact project staff will not begin work in a school unless both the principal and a majority of the teachers request it. Use of project services has spread from an initial six schools in 1971-72 to virtually all county schools at present. In part, this is because students, parents, teachers, and administrators have learned of the project's absorbing activities and impressive results in other schools and have asked for project staff involvement in their own schools.

Cooperation is also a prominent feature of the relationship between the project staff and staff of the districts. Districts offer support to the project in many ways, such as supplying space for offices and workshops and sharing salary costs of some project staff members. In addition, the Board distributes project funds in part on the basis of district needs instead of on a strict per-pupil basis, allowing smaller districts to maintain resources comparable to those in larger districts.

Weekly staff meetings are held in each of the four project offices to monitor activities in the schools, plan upcoming efforts, and share staff concerns and successes. Overall project staff meetings are held seven times yearly, concentrating on project staff development on topics related to project management. In addition, each project staff member has special responsibilities with respect to the year's goals and objectives for the project as a whole. As noted before, cooperation, mutual respect, and a team effort are the keys to effective project operations in all these areas.

Change and Growth in the Program

Since 1974-75, the guidance specialist model has been modified slightly to maintain high levels of service in the schools. In schools with high levels of career education activities, volunteer teachers or counselors have gone through intensive career education and guidance training so that they could take over a part of the guidance specialists' functions. This model of service delivery is known as the key educator model. In other schools where an entire feeder school grouping (that is, a high school with all its feeder junior highs plus all their feeder elementary schools) is involved in career education, a volunteer school staff member has been trained to act as coordinator/articulator of career education activities throughout the group. This model is called the feeder schools model. Guidance specialists continue to offer limited assistance within these two models. The intent of changing staffing patterns is eventually to turn over responsibility for career education to the local schools.

Staff Development

Inservice staff development of the school teachers and counselors who implement career education is the biggest single responsibility of the guidance specialists. Through workshops, building-level inservice sessions, and individual consultation, they endeavor to impart to teachers and counselors an understanding of the goals and methods of career education. The objective of all inservice programs is to help school staff members implement effective career education activities with their students.

Individual consultations are usually held at the request of a teacher or counselor. In these sessions the guidance specialist uses his/her knowledge of career education concepts, commercially prepared or locally developed career education materials, and school or community resources to help the teacher or counselor design an activity suited to specific student needs.

Building-level sessions are held at least once a month for the entire school staff at each school. These are on various topics, some of general interest and others specific to the school. A series of inservice training units has been developed by the project staff and is frequently used for building-level inservice sessions, especially in schools just beginning the use of project services. Their career education topics are:

- A National Priority
- A State's Involvement
- A County Project
- The Resource Consultant
- Hands-On Experience
- Testing
- Media
- Student-to-Student Programs
- Assistance to New and/or Student Teachers
- Utilizing Community Resources
- Parent Involvement
- Career Instructional Units
- Work Education
- Using Mini-Proposals

Workshops held on a multi-district or county-wide basis involve the staff development specialists plus guidance specialists, teachers, counselors, community members, visiting celebrities, or anyone else who has valuable knowledge on career topics. Some are available for optional college credit if the participant's district approves. Often the workshops are only one session in length, but they may run up to eight sessions. A list of titles from a recent semester is: (1) A.C.T.I.O.N.: Combining the Curriculum with Career Education Strategies for Immediate Classroom Use; (2) The Motivated Person; (3) Personal Development Through Goal Setting; (4) Workshop for Counselors; (5) Values Clarification for Junior High Students; (6) Career Education in Junior High School English; (7) Winning; and (8) Career Implications of Subject Matter: English and Foreign Languages.

One distinctive type of workshop is the businessman/teacher seminar, established to increase understanding of the world of work by strengthening communication between teachers and the working community. During an evening seminar, volunteer businesspersons and teachers develop a program to achieve a predetermined student goal. Teachers and guidance specialists work together to implement the agreed-upon activities. After some weeks, teachers return for a second seminar to share the results of their classroom experiences. These workshops are organized and facilitated by the Community Resource Center staff.

All workshops are evaluated by administering questionnaires to participants. Responses to these evaluation questions are used to improve future efforts. The degree of implementation of classroom activities, as monitored by guidance specialists, is another measure used to assess workshop effectiveness.

COSTS

Arizona State Department of Education funds awarded to the project amounted to \$278,000 in 1971-72; \$500,000 in 1972-73; \$535,000 in 1973-74; \$560,000 in 1974-75; \$640,000 in 1975-76; \$690,000 in 1976-77; and \$687,000 in 1977-78.

Local funds furnished to the project amounted to \$62,000 in 1971-72; \$68,000 in 1972-73; \$78,000 in 1973-74; \$84,000 in 1974-75; \$245,000 in 1976-76; \$399,850 in 1976-77; and \$486,580 in 1977-78.

The cost of operating this program can be estimated by the cost of project operation in 1974-75. (Since the Pima County project has been expanding continually since 1971, no maintenance phase has been entered.) In 1974-75, about 75,000 students were served by the project staff, resulting in a per-pupil cost of about \$6.75.

The breakdown of costs for 1974-75 is as follows:

Personnel	\$403,924
Personnel Training	2,000
Supplies and equipment	35,307
Consumables	3,200
Other (contractual services, travel, miscellaneous)	<u>115,704</u>
Total	\$506,135

EVIDENCE OF EFFECTIVENESS

The Evaluation Instruments

A local third-party evaluator developed the student outcome instruments during 1972-73 and has conducted formal evaluation of the program each year since then. The evaluator developed, pilot tested, and field tested a Careers Test to measure the effectiveness of the program. The test has two forms, an elementary-intermediate form for students in grades 4-7 and a secondary form for students at the 8-12 levels. The 4-7 level test contains 49 items, while the 8-12 level test has 82 items.

Both forms of the Careers Test are paper-and-pencil instruments. Both cover the seven dimensions of the Arizona Career Education matrix already discussed. In addition to scales in each of these areas, two other measures are included: a measure of cumulative knowledge in the nine career clusters, and a measure of interest in those nine clusters. All dimensional scores consist of percent of items answered correctly out of all items in that dimension, so that a perfect score equals 100.

Content validity has been verified by frequent review by state, county, project, and local district staff members. Reliability of the test was estimated by correlation of test/retest scores of 100 students tested at each of the two levels with a two-to-three month separation between tests. Scores in the seven dimensions were correlated .70 to .90 from one administration to the next.

Evaluation Design

The 1974-75 evaluation utilized a posttest only, treatment/control group design. The 1974-75 school year presented the last opportunity to find enough schools in the county to create a plausible control group. In that year, project services were formally offered in 110 county schools; however, approximately 10% of the schools received services tailored to non-English-speaking students who were heavily concentrated in rural areas. These schools were not included in this evaluation in either the treatment or the control group because of their special character. The schools in the final sample contained an overall population of about 80% white students and 20% Mexican-American, American Indian, and other minorities. This is close to the overall county population ratios.

In February and early March of 1975, the guidance specialists used information from their weekly activity logs on numbers of hours they spent at each school to assess the degree of implementation of career education in all district schools. Based on this information, schools were divided into high, medium, and low implementation groups.

Sample Selection

Student sampling was done by random selection of intact classes. A list of all teachers' names from the high and low implementation schools was compiled. Student samples were constructed by randomly selecting 50 teachers' names in each group and designating their students as members of the treatment and control groups. Twenty-five teachers each were selected at the 4-7 level and the same number was selected at the 8-12 level. The total number of high-exposure students actually tested at the 4-7 level was about 550, with an equal number of low-exposure students tested; almost 700 high-exposure and 700 low-exposure students were tested at the 8-12 level.

Data Analyses

T-tests were computed at each level (4-7 and 8-12) on each career education dimension of the Careers Test. Some dimensions were made up of sub-dimensions; in these cases, comparisons were done on the sub-dimensions instead of the total dimensions. Results are shown in Table 1 on the next page.

The self-awareness dimension is not measured directly by the test. However, items in the 1974-75 test did measure student perceptions of: (1) their readiness for employment in each of the nine clusters; (2) self-perceived brightness in relationship to other students; (3) self-expectations for scholastic performance;

and (4) differences in certainty of achieving educational and occupational aspirations. It is noteworthy that on every comparison made at each level, high-exposure students rated themselves higher than did low-exposure students, indicating a higher degree of self-confidence.

Table 1
Mean Percentage of Items Correct on the Careers Test,
t-Ratios, and Significance Levels

	# of items	High Exposure Sample (N = 550)	Low Exposure Sample (N = 550)	t	Significance Level		
<u>Elementary/Intermediate Students (grades 4-7)</u>							
Career Awareness	Educational Awareness	5	51.8	48.9	2.17	<.020	
	Knowledge of Skills Required	5	61.1	56.6	3.05	<.001	
	Knowledge of Factors Contributing to Job Satisfaction	5	57.7	53.3	3.19	<.001	
	Common Threads in Jobs	5	73.0	63.9	5.88	<.001	
	Economic Awareness	2	59.9	54.5	3.51	<.001	
	Decision Making	5	68.2	60.0	5.70	<.001	
	Appreciations and Attitudes	5	65.7	58.8	4.46	<.001	
	Knowledge of Career Clusters Score	9	57.4	48.3	6.69	<.001	
<u>Secondary Students (grades 8-12)</u>							
		(N = 700)	(N = 700)				
Career Awareness	Educational Awareness	4	53.7	42.0	6.42	<.001	
	Knowledge of Skills Required	7	62.1	50.0	7.08	<.001	
	Knowledge of Factors Contributing to Job Satisfaction	7	69.3	55.6	6.91	<.001	
	Common Threads in Jobs	7	70.6	57.6	6.34	<.001	
	Economic Awareness	Economic Awareness	4	58.6	47.1	5.64	<.001
		Awareness of Career Mobility	4	45.5	35.4	5.11	<.001
		Awareness of Factors Influencing Occupational Structure	5	59.0	47.4	5.79	<.001
		Decision Making	6	39.7	32.7	4.82	<.001
		Employability Skills*	9	27.5	22.4	8.06	<.001
	Appreciations and Attitudes	4	59.0	47.4	5.92	<.001	
Knowledge of Career Clusters Score	9	43.0	31.6	7.19	<.001		
Interest in Career Clusters Score**	9	25.7	24.0	3.86	<.001		

*proportion of students indicating "very well prepared" for entering clusters

**proportion of students indicating "very interested" in entering clusters

Calculated t-values are shown together with their significance levels (to .001 minimum). Student scores shown represent the mean percentage of items correct on that dimension or sub-dimension. Clearly, these results are tremendously impressive. All comparisons at every grade level favored the high-exposure students; 19 of 20 comparisons favored the high-exposure students at the .001 level of significance, with the remaining comparison favoring them at the .02 level of significance.

Review by Joint Dissemination Review Panel

The Joint Dissemination Review Panel (JDRP) was established by the Education Division of the Department of Health, Education, and Welfare in 1972. The joint U.S. Office of Education - National Institute of Education (NIE) Panel currently has 22 members, eleven from each agency, appointed respectively by the Commissioner of Education and the Director of NIE. The JDRP meets periodically to review the evidence of effectiveness submitted for a wide variety of federally supported educational products and practices, with effectiveness being the sole criterion for approval by the JDRP. It is charged with the responsibility of ensuring that educational interventions - projects, products, or practices - have been shown to have positive impacts on their recipients before they are disseminated with federal funds or endorsed by the Education Division.¹

In May 1978, the JDRP reviewed the Pima County Developmental Career Guidance Project; they voted not to approve it for nationwide dissemination at that time, indicating that additional information was needed to allow the Panelists to rule out other possible explanations of the results. The Panelists strongly urged that such information be included in a second submission to the JDRP permitting them to consider the exclusive relationship of the career guidance treatment to student scores on the careers test.

Subsequently, a revised submission including the information previously requested by the Panel was forwarded to the JDRP for a second review. The outcome of the second review was that the JDRP approved the Developmental Career Guidance Project for nationwide dissemination.

¹Tallmadge, G. K. The Joint Dissemination Review Panel: IDEABOOK. Washington, D.C.: NIE/DHEW, September 1977.

CONCLUSION

The statistical results show the strength of the project's impact. The value of this impact is shown by: (1) the importance of the seven goal areas tested; (2) the modest cost of implementing this program relative to the number of students served; and (3) the enthusiasm of project and school staff and the communities. It is noteworthy that in at least 30 schools, school officials who were reluctant to make use of project services (because of concern for their overburdened teachers and other staff members, fears of increased costs, or simple resistance to change) were prodded into action by parents, teachers, and counselors. Such enthusiasm demonstrates the program's importance as seen by the residents of Pima County.

Appendix A

High School Goal Statements

Self Awareness

The students will recognize the relationship of their interests, aptitudes, and achievements to the realization of their career goals.

- The students will evaluate their career goals in terms of interests, aptitudes, and achievement.
- The students will evaluate the successes and failures in their educational programs and develop understandings of occupations in which they might be successful.

The students will understand, accept, and respect their own uniqueness and self-worth as a result of learning, growth, and maturation.

- The students will accept themselves as unique persons.
- The students will understand that they are growing and continually developing persons.

The students will learn to establish goals that are important to them.

- The students will realize that what they believe influences what they become and that what they believe may change as they continue to acquire knowledge.

The students will understand that they have responsibilities to themselves and to others.

- The students will recognize the need to appreciate the skills, abilities, rights, and responsibilities of others.
- The students will understand the relationship between career and self-satisfaction.
- The students will understand that accepting a job implies acceptance of job responsibilities and requirements.
- The students will understand the need for positive relationships between themselves and others to perform a job.

Educational Awareness

The students will recognize the significance of language, computational and reasoning development, and the mastery of content knowledge as a means of achieving career goals.

- The students will analyze the changing nature of the world of work and its effects upon the individual.
- The students will evaluate their progress toward tentative career goals and assess their suitability.

The students will recognize that different careers require varying types of educational preparation.

- The students will understand the different types of educational preparation that are necessary for various careers.
- The students will plan the postsecondary educational experiences that will satisfy the entry-level requirements of their tentative career choices.

The students will recognize that their educational experiences are a part of their career development.

- The students will identify skills acquired in school that are relevant to selected occupations.
- The students will understand how school classes and activities will relate to their use of time throughout life.

The students will recognize that learning is continuous, occurring inside and outside of school.

- The students will become aware that continual learning is a part of life and career adjustment.

Career Awareness

The students will recognize that their career development includes progression through stages of educational and occupational experiences.

- The students will analyze factors that may influence their vertical and horizontal mobility in a selected career cluster.
- The students will analyze the function of management responsibilities relating to the careers they have chosen to research.

The students will understand the variety of occupations found in the world of work.

- The students will know the immediate steps necessary following high school to gain entry into their chosen careers.
- The students will know the detailed characteristics of their chosen fields.

The students will understand the relationship between career and life-style.

- The students will analyze the relationship between job requirements and their personal and professional goals.
- The students will recognize that mobile careers can cause changes in an individual's life-style.

The students will understand the way in which occupations relate to needs and functions of society.

- The students will become familiar with job opportunities as related to social and economic trends in their geographic area.
- The students will evaluate employment opportunities in their career areas based on local, regional, and national trends.

Economic Awareness

The students will understand the relationship between personal economics, life-style, and occupational roles.

- The students will understand the rewards of certain occupational roles.
- The students will become aware that individual values determine individual needs and relate to a desired standard of living.

The students will understand the relationship of their present and anticipated occupational status to economic trends found in their community, state, and nation.

- The students will become aware of principles used in predicting economic trends in their community, state, and nation.
- The students will apply economic principles to assist in predicting their career futures in terms of community, state, and national employment opportunities.

The students will understand the range of social and economic benefits associated with various occupations.

- The students will understand factors which influence them to need or want certain social and economic rewards.

Decision Making

The students will understand that decision making includes responsible action in identifying alternatives, selecting the alternative most consistent with their goals, and taking steps to implement a course of action.

- The students will understand that a given set of facts can support different decisions.
- The students will predict and analyze the immediate, intermediate, and long-term effects their decisions will have on themselves, family, and society.

The students will become proficient in using resource information to make career decisions.

- The students will understand how school and work experiences meet the needs of occupational preparation.
- The students will continue to acquire information in the continuing evaluation and development of their educational plans.

The students will identify personal goals as part of making career decisions.

- The students will analyze their career goals and the subsequent decisions that are required by such goals.
- The students will make tentative plans for developing their long-range career possibilities and what is required to achieve them.

Beginning Competency

The students will develop the skills necessary for employment in the career of their choice.

- The students will analyze the relationship between the skills they possess and the entry-level requirements of their chosen careers.
- The students will align their entry-level skills with their career desires.

The students will develop the skills required to identify the objectives of a task, specify resources required, outline procedures, perform operations, and evaluate the product.

- The students will develop observation skills used to collect data needed to solve problems.

The students will become familiar with the use of basic tools, equipment, and materials associated with business, commercial, and industrial activities.

- The students will identify the competency or expertise needed to use tools, equipment, and materials in business and industry.
- The students will understand safety as related to business and industry.

The students will develop an understanding of the interpersonal relationships resulting from the interaction of people in various occupational roles.

- The students will demonstrate those interpersonal-relations skills likely to be expected of them while looking for a job.

Employability Skills

The students will develop work habits and attitudes necessary to enter an occupation in the career area of their choice.

- The students will meet the requirements necessary for their post-high school career choices.
- The students will complete an assigned task related to employability; i.e., completing an application form or an interview.

The students will recognize the implications of working, with and without supervision, independently, and with others.

- The students will understand the advantages, disadvantages, and responsibilities of their career choices.
- The students will understand the requirements and value of supervision.

The students will relate information about themselves in selecting, learning, or performing duties.

- The students will present an accurate description of education, training, experience, and information about themselves to potential employers through a variety of ways such as interviews, tests, and application forms.

- The students will identify several potential careers in which they have an interest and aptitude.

Appreciations and Attitudes

The students will develop an understanding for the value of work and continual learning.

- The students, having tentatively chosen a career cluster, will analyze the common and unique characteristics of jobs within that cluster.
- The students, having tentatively chosen a career cluster, will identify how continual on-the-job learning can contribute to professional and personal satisfaction.

The students will understand the roles of leisure and the arts in achieving self-satisfaction.

- The students will analyze the value of leisure and its contribution to self satisfaction.
- The students will analyze the relationship of art to society and self-satisfaction.

The students will understand and appreciate the relationship of work, continual learning, the arts, and leisure in achieving social responsibility and self-satisfaction.

- The students, based on their tentative career choices, will analyze the interrelationship of work, continual learning, the arts, and leisure in achieving social responsibility and self-satisfaction.

Junior High Goal Statements

Self Awareness

The students will recognize the relationship of their interests, aptitudes, and achievements to the realization of their career goals.

- The students will become aware of the importance of hobbies, academic achievements, and athletic abilities in making choices about future occupations.
- The students will consider their interests and aptitudes in exploring career information.

The students will understand, accept, and respect their own uniqueness as a result of learning, growth, and maturation.

- The students will recognize that each individual is unique and therefore is capable of unique contributions.
- The students will examine changes that they are undergoing as they continue to develop and mature.

The students will learn to establish personally relevant, although tentative, goals.

- The students will understand the need for personal goals.
- The students will understand the relationship between their self-images and the goals they set.

The students will understand and recognize forces such as social, economic, educational, and cultural that influence their development.

- The students will become aware of the relationship between personal goals and the influence of significant others upon them.
- The students will understand that changes in them influence their environment, and that changes in the environment influence them.

The students will understand that they have responsibilities to themselves and others.

- The students will understand that they have a responsibility to themselves to be aware of the consequences of their decisions.
- The students will act upon their own best judgment with regard for both the consequences of their actions and the effects of those actions upon others.

Educational Awareness

The students will recognize the significance of language, computational and reasoning development, and the mastery of content knowledge as a means of achieving career goals.

- The students will understand the educational requirements needed for entry into occupations within selected career areas.
- The students will understand the need to plan an educational process to reach their selected career goals.

The students will recognize that different careers require varying types of educational preparation.

- The students will understand the relationship between levels of education and levels of employment.
- The students will understand that proficiency in certain subject areas is necessary to enter certain occupations.

The students will recognize that educational experiences are a part of their career development.

- The students will illustrate how participation in school activities can relate to selected career areas.
- The students will become aware of elements making up career cluster.

The students will recognize that learning is continuous, occurring inside and outside of school.

- The students will understand that learning is a product of in-school and out-of-school experiences.
- The students will become aware that out-of-school experiences can improve their capabilities in school.

Career Awareness

The students will recognize that their careers include progression through developmental stages of educational and occupational experiences.

- The students will recognize those things that influence job change and advancement.
- The students will review the performance requirements for various jobs.

The students will understand the variety of occupations found in the world of work.

- The students will become familiar with a variety of career groupings and explore the types of jobs found in each grouping.
- The students will identify several careers and recognize the specialized jobs related to each.

The students will understand the way in which occupations relate to needs and functions of society.

- The students will become aware of careers as they relate to the needs and functions of the community.
- The students will become aware of career characteristics within geographical locations and their relevance to job mobility.

The students will determine the worker qualifications needed to perform the basic tasks of various occupations.

- The students will identify the relationship of personal interests to success in specific occupational areas.
- The students will recognize the relationship between personal aptitudes and success in specific occupational areas.

Economic Awareness

The students will understand the relationship between personal economics, life-style, and occupational roles.

- The students will understand that money may determine their life-styles.
- The students will understand life-style needs and their relationship to career opportunities.

The students will understand the range of social and economic benefits associated with various occupations.

- The students will identify occupational roles which are compatible with their currently expressed needs and wants.
- The students will recognize that people-oriented and independent work are aspects of certain occupational choices, and they will explore their attitudes and behavior related to both.

The students will understand the relationship of their present and anticipated occupational status to economic trends found in their community, state, and nation.

- The students will develop knowledge of the relationship of economic trends in their community, state, and nation.
- The students will become aware of economic forecasting instruments.

Decision Making

The students will understand that decision making includes responsible action in identifying alternatives, selecting the alternative most consistent with their goals, and taking steps to implement a course of action.

- The students will demonstrate an ability to use decision-making and problem-solving skills in gaining self-awareness and relating it to career explorations.
- The students will understand that they are responsible for the outcomes of their decisions.
- The students will demonstrate skill in responsible decision-making behavior.

The students will become proficient in using resource information to make career decisions.

- The students will increase occupational and self-knowledge through the use of outside resources and experiences in the community.
- The students will have experiences whereby they can observe people at work.

The students will identify how personal goals are a part of making career decisions.

- The students will recognize that making decisions related to personal goals is required to make an occupational choice.
- The students will make tentative choices regarding long-range career interests.

Beginning Competency

The students will develop the skills required to identify the objectives of a task, specify resources required, outline procedures, perform operations, and evaluate the product.

- The students will refine skills by using and experimenting with them.

- The students will gain proficiency in problem-solving techniques as they apply in selected career areas.

The students will become familiar with the use of basic tools, equipment, and materials associated with business, commercial, and industrial activities.

- The students will increase their proficiency in the use of tools, equipment, and materials needed to perform various tasks.
- The students will identify the variety of tools, equipment, and materials needed in a selected business or industry.

The students will develop an understanding of the interpersonal relationships resulting from the interaction of people in various occupational roles.

- The students will understand that responsibility often necessitates behavior contrary to personal preference.
- The students will understand how attitude can be expressed through behavior.

The students will develop educational and occupational competency before moving to the next stage of preparation or entering an occupation in the career area of their choice.

- The students will demonstrate mastery of basic computational skills.

Employability Skills

The students will recognize the implications of working with and without supervision, independently, and with others.

- The students will recognize the difference between an entry-level job and future mobility within that job cluster.
- The students will understand that working independently may involve varying degrees of responsibility.

The students will relate information about themselves in selecting, learning, or performing duties.

- The students will use information about their interests, attitudes, and qualifications to refine their identification of potential career choices.
- The students will complete job application forms using personal interests, aptitudes, and qualifications information.
- The students will prepare letters, applications, resumes, and references related to career placement.

The student will develop the work habits and attitudes necessary to enter an occupation in the career area of their choice.

- The students will refine their social skills necessary for employability.
- The students will demonstrate communication, writing, and research skills appropriate for career placement.

Appreciations and Attitudes

The students will develop an understanding for the value of work and continual learning.

- The students will analyze the interdependency of jobs within their community.
- The students will understand why they and their families are dependent upon services performed within their community.
- The students will realize that continual learning is essential to their growth and maturity.

The students will understand the roles of leisure and the arts in achieving self-satisfaction.

- The students will explore leisure-time experiences and how they contribute to self-satisfaction and employment.
- The students will develop an understanding of art as it relates to self and society.

The students will understand and appreciate the relationship of work, continual learning, the arts, and leisure in achieving social responsibility and self-satisfaction.

- The students will analyze the roles of work, continual learning, the arts, and leisure in achieving self-satisfaction.
- The students will analyze the roles of work, continual learning, the arts, and leisure in achieving social responsibility.

Intermediate Goal Statements

Self Awareness

The students will recognize the relationship of their interests, aptitudes, and achievements to the realization of their career goals.

- The students will develop an understanding of their strengths and weaknesses, likes and dislikes, and achievements.
- The students will become aware of the relationship between interests, aptitudes, achievements, and occupations.

The students will understand, accept, and respect their own uniqueness as a result of learning, growth, and maturation.

- The students will identify ways in which they are emotionally alike and different from their peers.
- The students will identify several "values" they possess and trace the development of those "values."

The students will learn to establish personally relevant, although tentative, goals.

- The students will recognize that setting priorities is an important part of setting and reaching goals.
- The students will recognize the different consequences of goal-directed activities and undirected activities in a classroom setting.

The students will learn about themselves in relation to their culture through understanding and experiencing roles.

- The students will understand the term "role" as it relates to an individual in a group or organization.

The students will understand that they have responsibilities to themselves and others.

- The students will understand that when they accept responsibilities others may depend on them to fulfill those responsibilities.
- The students will understand that others are influenced by the way in which they perform their responsibilities.

Educational Awareness

The students will recognize the significance of language, computational and reasoning development, and the mastery of content knowledge as a means of achieving career goals.

- The students will develop a greater understanding of how and why reading, writing, number skills, and science are used in most jobs.
- The students will relate skills learned in the classroom to those used by workers.

The students will recognize that different careers require varying types of educational preparation.

- The students will develop an understanding of how communications, mathematics, science, and social studies skills are used in selected occupations.
- The students will understand the relationship between in-school experiences and career directions.

The students will recognize that educational experiences are a part of their career development.

- The students will recognize that participation in school classes and activities may relate to their use of time throughout life.
- The students will understand relationships between educational experiences and career selection and development.

The students will recognize that learning is continuous, occurring inside and outside of school.

- The students will become aware of the connection between in-school and out-of-school learning experiences.
- The students will become aware that desire and capability to learn influence their learning.

Career Awareness

The students will recognize that their career development includes progression through stages of educational and occupational experiences.

- The students will recognize the role of present school experiences in preparation for future career performance.
- The students will recognize that some jobs have specific but common requirements for job success.

The students will understand the variety of occupations found in the world of work.

- The students will become aware of the variety of jobs in the community and region.

The students will identify characteristics which differentiate between jobs.

- The students will identify and classify local jobs.
- The students will become aware of the existence and importance of the interdependency of jobs.

The students will understand the way in which occupations relate to needs and functions of society.

- The students will understand the interdependence of occupations to fulfill the goals, needs, and functions within a community.
- The students will observe the way in which occupations are interdependent in fulfilling community needs and goals.

Economic Awareness

The students will understand the relationship between personal economics, life-style, and occupational roles.

- The students will develop an awareness of the advantages and disadvantages of certain occupational roles.
- The students will become aware of the relationship between desired life-styles and career opportunities and potential.

The students will understand the range of social and economic benefits associated with various occupations.

- The students will recognize that rewards usually go to those who extend the effort to gain them.
- The students will understand that social and economic needs and wants differ among people.

- The students will understand some factors which have caused social and economic benefits to differ among occupations.

The students will understand the relationship of their present and anticipated occupational status to economic trends found in their community, state, and nation.

- The students will begin to develop an understanding of the economic relationship between themselves, family, and community.
- The students will understand the relationship of economic trends that affect their community and state.

Decision Making

The students will understand that decision making includes responsible action in identifying alternatives, selecting the alternative most consistent with their goals, and taking steps to implement a course of action.

- The students will recognize cause and effect relationships in decisions.
- The students will recognize the steps of the decision-making process.
- The students will recognize the consequences of their decisions.

The students will become proficient in using resource information to make career decisions.

- The students will obtain information about jobs which interest them and for which they seem to have the aptitude based upon their current knowledge and feelings.
- The students will collect information from the community relating to careers of their choice.

The students will identify how personal goals are a part of making career decisions.

- The students will understand that their interests, aptitudes, skills, physical characteristics, educational achievements, adjustive behavior, needs, and relationships with other people all influence their goals and career decisions.
- The students will recognize that making decisions is required to meet personal goals.

Beginning Competency

The students will develop the skills required to identify the objectives of a task, specify resources required, outline procedures, perform operations, and evaluate the product.

- The students will plan tasks considering necessary time, tools, and materials needed for their completion.
- The students will become familiar with process skills and techniques of problem solving.

The students will become familiar with the use of basic tools, equipment, and materials associated with business, commercial, and industrial activities.

- The students will identify the need for safety as related to tools, equipment, and materials.
- The students will recognize the competency of expertise needed to use tools, equipment, and materials.
- The students will demonstrate the safe use of simple tools, equipment, and materials in the classroom.

The students will develop educational and occupational competency before moving to the next stage of preparation or entering an occupation in the career area of their choice.

- The students will understand the skills necessary to locate and organize information.
- The students will develop cognitive skills associated with the scientific method.

Employability Skills

The students will recognize the implications of working with and without supervision, independently, and with others.

- The students will recognize that some tasks must be done alone and some in groups or teams.
- The students will recognize the association between volunteering for a task and responsibility for its completion.
- The students will understand that members of a group may accomplish tasks by having each person specialize on a particular part.

The students will relate information about themselves in selecting, learning, or performing duties.

- The students will be given the opportunity to complete school tasks for which they are qualified.
- The students will relate their qualities, aptitudes, and interests to jobs in the D.O.T. (Dictionary of Occupational Titles).

Appreciations and Attitudes

The students will develop an understanding for the value of work and continual learning.

- The students will realize that they and their families depend on the jobs of others to help meet their needs.
- The students will relate nonschool experiences with in-school learning.

The students will understand the role of leisure and the arts in achieving self-satisfaction.

- The students will realize that leisure time can be productive as well as self-satisfying.
- The students will become aware of the variety as well as the uniqueness of art forms: e.g., dancing, painting, sculpture, and music.

Primary Goal Statements

Self Awareness

The students will understand, accept, and respect their own uniqueness as a result of learning, growth, and maturation.

- The students will recognize their feelings.
- The students will learn to express their feelings in a socially acceptable manner.

The students will learn to establish personally relevant, although tentative, goals.

- The students will relate their needs to goals in a classroom setting.
- The students will identify short-term goals.

The students will learn about themselves in relation to their culture through understanding and experiencing roles.

- The students will recognize the role of each family member.
- The students will begin to recognize the uniqueness of themselves and others.
- The students will recognize that individual task performance is a part of effective group membership.

The students will understand that they have responsibilities to themselves and others.

- The students will identify responsibilities they have to others: e.g., honesty, fairness.
- The students will respect the feelings of others.
- The students will identify responsibilities they have to themselves, e.g., to perform to the best of their abilities in and out of school.

Educational Awareness

The students will recognize the significance of language, computational and reasoning development, and the mastery of content knowledge as a means of achieving career goals.

- The students will recognize that learning helps them to do things for themselves.
- The students will recognize that a relationship exists between learning and performing various tasks.

The students will recognize that different careers require varying types of educational preparation.

- The students will recognize that various occupations have different educational and training requirements.
- The students will recognize how communications, mathematics, science, and social studies are used in some jobs.

The students will recognize that educational experiences are a part of their career development.

- The students will become aware that classroom and outside-of-school experiences may be related.
- The students will become aware of the relationship between educational experiences and occupational tasks.

The students will recognize that learning is continuous, occurring inside and outside of school.

- The students will become aware that learning is a continuous process.
- The students will become aware of the experiences they have outside of school.

Career Awareness

The students will recognize that their careers include progression through developmental stages of education and occupational experiences.

- The students will become aware that adequate preparation for a school task facilitates its performance and improves the outcomes.
- The students will become aware that present school experiences are related to certain career requirements.

The students will understand the variety of occupations found in the world of work.

- The students will become aware that people do different things at their work.
- The students will become aware of work performed in their environment.
- The students will become aware of the variety of occupations in the world of work.

The students will understand the way in which occupations relate to the needs and functions of society.

- The students will recognize the interdependency of family members as workers in the home.
- The students will understand how the performance of some occupations meets the needs of the community.

Economic Awareness

The students will understand the relationship between personal economics, life-styles, and occupational roles.

- The students will become aware of the necessary preparation required in order to perform certain tasks.
- The students will begin to develop an awareness of the economic aspects of life-styles.

The students will understand the range of social and economic benefits associated with various occupations.

- The students will develop an understanding for the reasons why people work.
- The students will become familiar with the varied economic rewards gained from different kinds of work.

Decision Making

The students will understand that decision making includes responsible action in identifying alternatives, selecting the alternative most consistent with their goals, and taking steps to implement a course of action.

- The students will become aware of the effect their decisions have on others.
- The students will accept the responsibility for their decisions.
- The students will recognize that their decisions may not be accepted by others.

The students will become proficient in using resource information to make career decisions.

- The students will identify their sources of information when making choices.
- The students will understand that their sources of information may not be accurate.

The students will identify personal goals as part of making career decisions.

- The students will become aware that goals made in school affect decisions outside of school.
- The students will recognize the need to make decisions.

Beginning Competency

The students will develop the skills required to identify the objective of a task, specify resources required, outline procedures, perform operations, and evaluate the product.

- The students will become aware that steps are necessary in completing tasks.
- The students will plan simple tasks utilizing familiar resources.
- The students will become aware that problem-solving techniques are needed in various jobs.
- The students will identify problem-solving techniques they utilize in school.

Employability Skills

The students will recognize the implications of working with and without supervision, independently, and with others.

- The students will understand the differences between working independently or as a member of a group.
- The students will recognize that supervision may help them accomplish tasks with greater efficiency.

The students will relate information about themselves in selecting, learning, or performing duties.

- The students will relate their qualifications for tasks at home, school, and in the community.
- The students will develop communication skills by following directions and directing others in task accomplishment.

Appreciations and Attitudes

The students will develop an understanding for the value of work and continual learning.

- The students will identify community workers that provide services for their families.
- The students will understand that learning can take place in and out of school.

The students will understand the roles of leisure and the arts in achieving self-satisfaction.

- The students will identify things they enjoy doing in their extra time and how those things contribute to their self-satisfaction.
- The students will participate in the arts, sharing their ideas with others.

Developmental Career Guidance Project



PIMA COUNTY DEVELOPMENTAL CAREER GUIDANCE PROGRAMS

Community Resource Center Programs:

PARENT DISCUSSION GROUPS AND LEADERSHIP TRAINING

Parent Discussion Groups are offered to give training to parents in practical and effective methods of democratic family living. Members gain skills which enable them to handle the normal day-to-day relationships with their children with greater effectiveness, ease, and fairness. Group leaders are lay people who have received training, or Guidance and Counseling students from the University of Arizona. Jody Burns and Barbara Barkenbush are the Parent Involvement Specialists. Over 600 parents were involved in their program last year.

PARENT INVOLVEMENT

This is an extension of the Parent Discussion Groups. The Project is most supportive of any aspect of having parents involved in the schools. An organized Parent Involvement Program is often coordinated with the use of a Parent Resource File. School volunteers--library helpers, resource speakers, classroom aids--are obtained through these files.

WORK EXPOSURE AND WORK EXPERIENCE

Work Exposure Programs are aimed at students from 7th through 12th grade and enable students to explore several interest areas by observing on a job site for approximately ten hours. The exposure is intended to become a part of other classroom subjects. Work Experience provides an opportunity for students in the 10th through 12th grades to perform tasks on an actual job for approximately eight hours per week. These programs are designed for the rural schools. Last year over 1000 students were involved in the two programs. Lee Anna Simons is the Work Education Coordinator.

ADAPTIVE EDUCATION

The Career Guidance Project includes service to teachers of Special Education classes throughout Pima County. It is hoped that the integration of self awareness, occupational knowledge, and decision-making activities in both the remediation and enrichment process will affect improved student behavior in these areas as well as improved student performance in the 3R's. Service will be extended to meet the needs of gifted, trainable, educable, physically and emotionally handicapped, learning disabled and hearing impaired students.

TEACHER WORK EXPOSURE

This program provides on-site exposure in any occupation to facilitate integration of Career Education into instructional activities. Educators establish goals and objectives they hope to accomplish on a chosen job site and organize a plan to integrate their work exposure in the classroom. Having obtained their own work site in an occupation, educators spend up to forty hours in actual work experience, then write a follow-up activity which they will use in their classroom or school.

BUSINESSMAN/TEACHER SEMINARS

These Seminars were established to increase understanding of the world of work by strengthening communications between teachers and the working community. During the seminars, volunteer businesspersons and teachers develop a workable plan for implementing a predetermined goal into the classroom. Later, teachers and guidance consultants meet to discuss progress of the implementation. After several weeks, teachers return for a second seminar to share the results of their classroom experiences. Some Seminar topics have included Personal Financial Management, Planning and Managing the Community, and Cultural Awareness.

COMMUNITY RESOURCE SPEAKERS

One of the resources most widely used by teachers at all levels is that of introducing community representatives into the classroom as guest speakers. Any teacher in a Pima County public school may submit a request to the Community Resource Center for a guest speaker. We then refer to our extensive file of community members who have volunteered to come to a classroom to share information about their job or hobby or demonstrate a skill. Last year, over 800 community members appeared as guest speakers in classrooms. Teachers may also phone the Resource Center for information on field trip sites in Tucson. Beth Berry and Jody Burns are the Community Resource Specialists.

COMMUNITY RESOURCE ADVISORY COUNCIL

The Council includes approximately 18 businesspersons from the community invited to the Council to: offer suggestions and provide expertise for increasing community involvement in the career guidance process, assist in the coordination of planned community resource activities, aid in establishing new program proposals, assist in placement of teachers in the Teacher Work Exposure Program, and help establish goals and objectives for the Businessman/Teacher Seminars. The Council meets on the third Thursday of every month at 3:00. Membership is for three years.

Other Project Programs:

KEY TEACHER/KEY TEAM

This program was designed to aid schools in the transition from a Project based to a school based system of Career Guidance. The Key Teacher/Team in a school serves as the liaison between that school and the Career Guidance Project. Through this program, direct ownership of this concept is realized.

BILINGUAL/MULTICULTURAL

The objective of multicultural studies is for students to recognize the importance of individual self awareness and to acquire an active understanding of themselves as a valuable member of a distinct culture. Students engage in activities that will enable them to identify major and minor cultures around the world. They take part in individual, small group, and total group activities that will increase their understanding and appreciation of how other people live. Vital aspects of culture are emphasized in all activities, i.e., work, art, music, customs, food, recreation, etc.

MINI-PROPOSALS

Data show that teachers are willing to plan and implement all varieties of career education activities and these activities must be adapted to their own local needs and circumstances. Often, effective implementation requires a small amount of media, materials and/or supplies that may not be a part of a normal school supply pattern. Therefore, teachers may apply for a Mini-Proposal to receive funds for items needed in a specific classroom activity consistent with the State Department of Education goal.

FEEDER SCHOOL

The project was originally organized around the theory that career education should be developmental--begin early in life for each individual and build in a progressive manner as school and life continue. The intent of this goal is to develop a formal long range plan for cooperative implementation of Career Guidance among the individual school buildings (K-12), in each feeder school group. Thus, the student's career development will be continuous from elementary to junior high through high school. Thus a customized approach in meeting student needs is guaranteed.

SECONDARY COUNSELING ROLE

This goal involves the building principals and their respective counseling staffs in formally preparing and adopting agreements which clearly outline the roles of the counselors in delivering career guidance in the Project's seventeen high schools. Area counselors are provided inservice programs to increase their effectiveness.

MEDIA

This goal involves the project staff in previewing and purchasing recommendations of media in order to establish a long range plan for increasing the effectiveness of the media collection.

IMPLEMENTATION UNITS

Arizona has produced 24 Career Education Instructional Units that have undergone formalized field-testing and evaluation procedures. These instructional units are provided by the Project free of charge and on a permanent basis to any Pima County teacher requesting them for classroom use.

CLASSROOM GUIDANCE ACTIVITIES

The Project uses the "Counselor-Consultant" model for providing support services to classroom teachers, school counselors, and school administrators. The counselor and classroom teacher become a team concerned with the development of the student and combining career information with self awareness. Because students do not all learn in the same way, different strategies must be developed for tapping the individual student's strengths. In accomplishing this, Project Guidance Specialists are involved in numerous classroom activities, curriculum development and in-service programs for teachers.

CAREER EDUCATION CENTERS

Most schools have established career guidance and/or information centers including a year round career center at Apollo Junior High, a career center at Amphi High School, a bilingual student center at Pueblo High School, a Life-Planning Center at Canyon Del Oro High School, and a learning resource style center at Palo Verde High.

HANDS-ON KITS

These have been so named because of their ability to utilize the five senses in approaching learning activities. They are a collection of real tools and materials used in actual work situations for specific occupations. Students can handle, experiment with, and use the items for role playing. Real experiences with real tools provide relevant activities which help the student to understand the relationships between educational experiences and the world of work. Also, students become aware of their aptitudes, likes and dislikes, and achievements. District 1 materials may be checked out through the E.M.C.

SELECTIVE ENRICHMENT

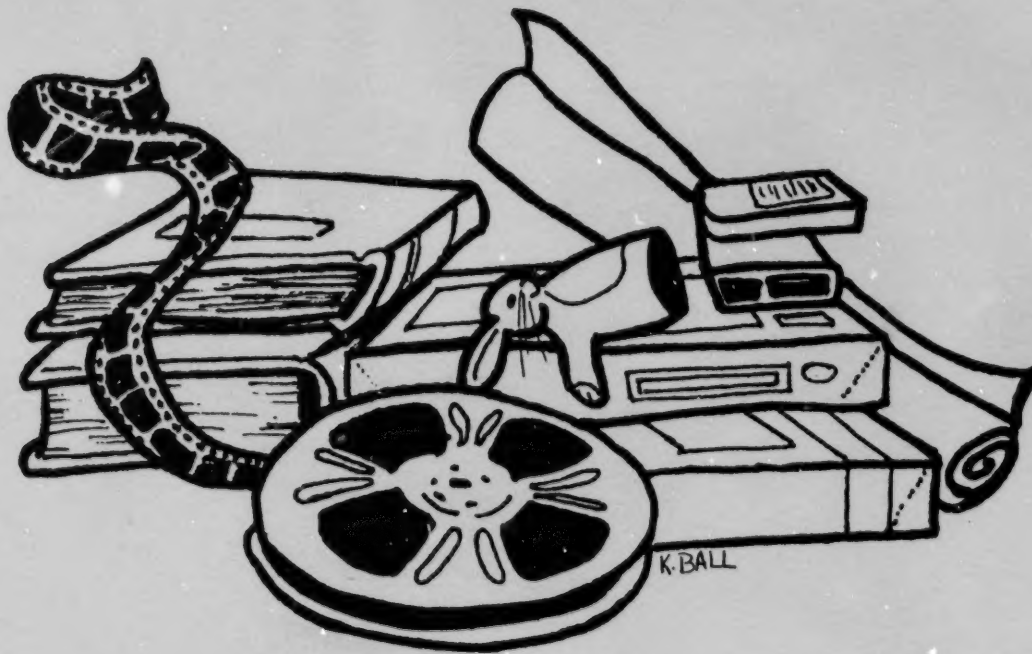
This is a student to student program which enables students to expand their special interests and talents through experience in teaching programs at the elementary and junior high levels in Tucson District #1. Some 70 juniors and seniors from four high schools are chosen by the instructor and/or department head of each area to provide help in specialized educational areas and have the opportunity to serve others.

IN-SERVICE

One of the many roles of the Career Guidance consultant is to provide in-service for teachers on what services and programs are available through the Project, how Career Guidance can be used in the classroom, and idea sharing of activities. Salary increment credit is sometimes offered to teachers attending the In-Service. Special In-Service Programs include workshops for the training of Key Teachers and Seminars for Administrators to increase their active career guidance.

DEVELOPMENTAL CAREER GUIDANCE PROJECT

Media Catalogue



1977-78

2302 E. SPEEDWAY, SUITE 210

795-0504

ORGANIZATION OF THE GUIDE

The media catalog is divided into three major sections and are color-coded for easy access:

GREEN	K - 6
BLUE	7 - 8
BUFF	9 - 12
YELLOW	Inservice

To aid you in determining the usefulness of the media in your curriculum area, the catalog includes a summary of the media and three columns located on the right-hand side of each page.

The first column suggests subject areas where the media may be most useful. The Curriculum Code is:

BE	-	Business Education	IA	-	Industrial Arts
DE	-	Distributive Education	LA	-	Language Arts
FA	-	Fine Arts	M	-	Mathematics
G	-	Guidance	PE	-	Physical Education
HE	-	Home Economics	S	-	Science
			SS	-	Social Studies

The second column indicates the career clusters or clusters of jobs discussed in the media. The Cluster Code is:

BO - Business & Office	MS - Marine Science
MD - Marketing & Distribution	EC - Environmental Control
CM - Communication & Media	PS - Public Service
C - Construction	H - Health
M - Manufacturing	HR - Hospitality & Recreation
T - Transportation	PeS- Personal Services
AB - Agri-Business & Natural Resources	FAH- Fine Arts & Humanities
	CH - Consumer & Homemaking

The third column lists the career elements or themes of Career Education that need to be integrated into the curriculum at all grade levels. The Element Code is:

- SA - Self Awareness: The student will recognize and understand his own interest, aptitudes and achievements and how they relate to his own goals. He will understand that he has responsibility to himself and others.
- DM - Decision Making: The student will be able to apply information to rational processes to reach decisions. He will understand that decision making includes responsible action in identifying alternatives, selecting the alternatives most consistent with his goals, and taking steps to implement a course of action.
- BC - Beginning Competency: The student will become familiar with the use of basic tools, equipment, and materials associated with business, commercial, and industrial activities. He will develop the skills required to identify the objectives of a task, specify resources required, outline procedure, perform operations, and evaluate the product.
- ES - Employability Skills: The student will gain skills in the ability to work in groups, follow directions, accept responsibility, and maintain personal interaction skills.
- AA - Appreciation and Attitudes: The student will understand the role of leisure and the arts in achieving self satisfaction and develop an understanding for the value of work and continual learning.
- EA - Educational Awareness: The student will recognize that educational experiences are a part of his career goal and understand the educational requirements needed for entry into occupations in certain career areas.
- EcoA - Economic Awareness: The student will understand the relationship between personal economics, life-style and occupational roles; the range of social and economic benefits associated with various occupations; and the relationship of his present and anticipated occupational status to economic trend found in his community, state, and nation.
- CA - Career Awareness: The student will understand the variety of occupations found in the world of work and the way in which occupations relate to the need and functions of society.

ELEMENTARY LEVEL K-6

NO.	TITLE AND BRIEF DESCRIPTION	SUBJECT	CLUSTER	ELEM.
	<u>AIRPLANE (HOT DOG SERIES)</u> Films Incorporated 1 16mm film/summary sheet This color sound film, with Jo Ann Worley, Jonathan Winters, and Woody Allen, uses humor in explaining the history and uses of the airplane. The summary sheet includes a lesson plan and activities.	S	T	CA, EA
	<u>ALEGRIA INFANTIL</u> Golden Press 1 book Appealing Richard Scarry format and illustrations depict the following in Spanish: the weather and seasons, birds, homes, playground, tools, jobs, and the garden.	ALL	ALL	ALL
	<u>THE ART OF HELPING</u> Human Resource Development Press Book This book's task is to facilitate the reader's learning of how to initiate helping skills. It takes a developmental approach to learning how we respond from the time of infancy to adulthood. The chapters are entitled: 1. Introduction 2. Attending 3. Responding 4. Personalizing 5. Initiating 6. Helping This is an excellent reference for teachers to use for self-understanding and understanding their students. It would be very effective in a child development class or family planning class.	G	SA	ALL
	<u>BEGINNING CONCEPTS Unit 1</u> Scholastic Magazine, Inc. 5 filmstrips/5 cassettes This kit contains 5 cassettes, 5 fingerpuppets and hats to aid the early childhood students in becoming aware of careers. The careers explored are: "Baker" "Doctor" "Quiltmaker" "Park Ranger" "Factory Workers" To make the students become more involved there are paper hats and fingerpuppets to go with each story. The teacher's manual includes many follow-up activities in numerous subject areas. Excellent kit for teacher and student.	ALL	ALL	CA

NO.	TITLE AND BRIEF DESCRIPTION	SUBJECT	CLUSTER	ELEM.
	<u>A DAY IN THE LIFE OF BONNIE CONSOLO</u> Barr Films Film Bonnie Consolo was born without arms yet she leads a normal life. She has a home, two children, and a good outlook on life which reaches all who meet her. This film is an excellent example of what people can do to overcome any handicap.	ALL		SA, AA
	<u>BICENTENNIAL GAMES</u> Coachhouse games 3 games These games can be used to present or reinforce information on the primary, intermediate, or secondary levels. Spirit of America games have been created to stimulate interest and excitement in our American heritage. Game 1: Birth of a Revolution Game 2: The Years of Crisis Game 3: Independence	SS	FAH	EA
	<u>BIG BLUE MARBLE</u> Xerox Corp. 4 filmstrips, 4 cassettes, teacher's guide The Big Blue Marble series is designed to aid students in understanding the world of work. Real life work situations are shown as the workers are interviewed on job responsibilities. At the end of each filmstrip, an animated look at the future is shown. Each kit includes the following items: 1. Filmstrip 2. 2-sided cassette, one side is the filmstrip narrative and the other side is a career feature in radio show form 3. A set of hands-on items duplicating articles actually used by workers in that field 4. Teacher's guide <u>1. Transportation</u> Overview of the trucking industry is shown through the Safeway Corporation. Trucks are shown being scheduled on runs, being repaired, and the problems encountered on their runs.	SS, IA HE	T, CH	CA, CA
	<u>2. Consumer and Homemaking</u> This filmstrip is more concerned with the less traditional, outside the home occupations which exist for the benefit of the consumer. Careers shown are home economist, employees of department stores, government inspectors, interior decorators and discount house personnel.			

NO.	TITLE AND BRIEF DESCRIPTION	SUBJECT	CLUSTER	ELEM.
	<u>AMERICAN WOMEN</u> Butterick Publishing 2 filmstrips/2 cassettes/1 teacher's guide Part 2: "New Opportunities" This series of filmstrips further expands the concept of the changing roles of women. Women from different backgrounds are shown discussing their work and lifestyle. The case studies show single women, divorced women, and married women discussing their career opportunities. The teacher's guide includes lists of resources, suggestions for activities and four student resource and activity sheets.	G, HE SS, PE	ALL	SA, CA
	<u>THE ART OF ANIMATION</u> Walt Disney Educational Media Company 10 books/2 cassettes/1 filmstrip/teacher's guide Book describes the history and technological developments in animated film production. Filmstrip follows steps in modern cartoon making.	FA	CM, FAH	BC CA AA
	<u>THE ART OF HELPING</u> Human Resource Development Press Book This book's task is to facilitate the reader's learning of how to initiate helping skills. It takes a developmental approach to learning how we respond from the time of infancy to adulthood. The chapters are entitled: 1. Introduction 2. Attending 3. Responding 4. Personalizing 5. Initiating 6. Helping This is an excellent reference for teachers to use for self-understanding and understanding their students. It would be very effective in a child development class or family planning class.	G, ALL		ALL
	<u>THE ART OF LISTENING</u> Schloat Productions 4 filmstrips/4 cassettes/1 teacher's guide The art of listening is a series of four, color filmstrips designed to aid students in learning how to listen. The first filmstrip deals with emotional and physical responses to both sounds in general and sounds organized into a musical pattern. The second and third filmstrips deal with basic technical aspects of music. Rhythm, melody, harmony and counterpoint are discussed and explained. The final filmstrip demonstrates theme and variation through a composition by Charles Ives. All the other concepts are used in this performance to create a total summary. The teacher's manual gives suggestions for individual and group projects as well as a brief summary of the history of music.	G, FA LA	ALL	SA BC AA

NO.	TITLE AND BRIEF DESCRIPTION	SUBJECT	CLUSTER	ELEM.
	<u>BETWEEN GENERATIONS: PARENT/TEENAGE RELATIONSHIPS</u> McGraw-Hill Films 4 filmstrips/4 cassettes/brochure SENSITIVE SUBJECT MATTER. PREVIEW BEFORE USING These sound filmstrips present attitudes and problems encountered in parent/teenage relationships by featuring actual families in situations which are both realistic and relevant. Because some of the material deals with drugs and sex, it is advised that the approval of school authorities be secured prior to use. 1. <u>Nobody's Perfect</u> In this filmstrip, the ideals and expectations a set of parents hold for their son and daughter are visualized in cartoons while glimpses of reality are seen in photography. 2. <u>Man/Child</u> A family has conflicting viewpoints on responsibility. The son feels upset when his parents question his social plans while the parents feel he is acting irresponsibly and causing them to worry when he does not keep them informed as to his whereabouts. 3. <u>A Boy for You, A Girl for Me</u> This filmstrip explores the attraction that exists between parents and children of the opposite sex and the competition that exists between parents and children of the same sex. 4. <u>Glass Houses</u> This filmstrip deals with sensitive subject matter and should be shown with prior approval of school authorities. The narrow-mindedness of both generations is seen in the juxtaposition of conversations at a teenage party and at an adult gathering. Both groups display intolerance of each other's values, dress, and social mores. Teenagers are seen using marijuana while their parents consume alcoholic beverages.	G	H	SA
	<u>BICENTENNIAL GAMES</u> Coachhouse games 3 games These games can be used to present or reinforce information on the primary, intermediate, or secondary levels. Spirit of America games have been created to stimulate interest and excitement in our American heritage. Game 1: Birth of a Revolution Game 2: The Years of Crisis Game 3: Independence	SS, HS	FAH	EA

PROJECT CERES

Ceres Unified School District
Ceres, California

Octave V. Baker
American Institutes for Research

Virginia Lish
Ceres Unified School District

30 June 1978

The information reported herein was obtained pursuant to contract no. 300-77-0303 with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to document information according to their observation and professional judgment. Consequently, information, points of view, or opinions stated do not necessarily represent official Office of Education position or policy.

FOREWORD

This activity description was prepared as part of a study conducted by the American Institutes for Research (AIR) under contract No. 300-77-0303 to the U.S. Office of Education. The purposes of the study were to identify evaluated, exemplary career education activities; to recommend identified activities to the Joint Dissemination Review Panel (JDRP) of the Education Division, Department of Health, Education, and Welfare; to prepare descriptions of identified activities; and to develop a handbook with six models for evaluating career education activities.

The criteria established for screening activities in this study intentionally limited choices to those whose evaluation reports presented evidence of effectiveness. Close attention was given to the soundness of evidence in evaluation reports. A minimum requirement for this evidence of effectiveness was that some comparison standard be provided so that gains made by the students participating in the activity could be attributed to the impact of the activity. After confidence in the evidence of effectiveness was established, further criteria were applied. These criteria included consistent relationships between a well-planned assessment of needs, a statement of desired student outcomes, the selection of instruments, and the procedures used in data collection, management, and analysis.

This document describes one of ten projects that was selected from among 250 submitted. It presents one locale's way of successfully implementing a career education activity, the results of which are educationally significant. Although the description reflects an activity developed in response to local needs, other school districts with similar needs may wish to adapt parts or all of it according to their own circumstances and philosophy.

We are grateful to M. Robert Adkison, Superintendent of the Ceres Unified School District, for his unceasing support of career education; to John Avila and Jack Rudd for their commitment to making Project CERES a success; and to the staff of Project CERES who generously gave their time to answer questions from AIR site visitors. They extended a special kind of hospitality and spared no amount of effort to provide the information necessary to prepare this description. They made it possible for the site visitors to see the program in action, as well as to understand the philosophy and strategies that underlie its operations.

Project CERES materials are judged to be free of bias with regard to race, sex, age, income levels, and type of occupation.

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PROJECT OVERVIEW

TITLE & LOCATION: Project CERES (Career Education Responsive to Every Student)
Ceres Unified School District
P.O. Box 307
Ceres, California 95307

TYPE: Infusion

PROJECT
COORDINATOR: Virginia Lish
Ph: (209) 538-0148

SETTING: In 1972-76, the project was implemented throughout the district's schools in grades K-12, with funding from a Vocational Education Part D grant and a grant from the U.S. Office of Career Education. The school district is located in Stanislaus County, which lies in the heart of the Central Valley of California. It serves approximately 4,200 students from a rural, small-town community of about 12,000.

STAFF: During the four-year development and field testing period, Project CERES staff consisted of a project director, a part-time curriculum coordinator, an evaluation consultant, and a secretary.

GOALS: The project has the dual goals of infusing career education concepts into the elementary and secondary curriculum and of developing an articulated curriculum that provides for student attainment of career education goals.

EVALUATION DESIGN: The impact of Project CERES activities on students was evaluated in 1973-74 by utilizing a pre-post treatment and control group design.

MATERIALS: The project has emphasized not only the development of curriculum models and objectives for career education but also the production of materials to implement or provide for the teaching of the curriculum. Over 100 Learning Activity Packages and other materials have been developed and field-tested.

COST: The main cost items are teachers' time spent in teacher training, consultant assistance, a part-time project staff coordinator, and student materials.

PROJECT DESCRIPTION

As a result of a four-year research and development effort, Project CERES has established a curriculum that provides for pupil achievement of commonly accepted career education goals in grades K-12. General direction for the project was set by definitions provided by the Career Education Task Force of the California Department of Education and the U.S. Office of Education. The overall purpose of the project was to infuse career education concepts into the general elementary and secondary curriculum and to develop an articulated curriculum that provided direction for students in career development. The project staff revised previously existing course guides to facilitate the infusion of career education concepts into the regular instructional goals, student objectives, and staff responsibilities at the various grade levels. A strong in-service education program enhanced the development of all activities.

The project was developed by personnel of the Ceres Unified School District from 1972 to 1976. Funds for the first three years of the project (1972-1975) were provided by a Vocational Education Part D grant. Funds for the fourth year were provided by an Incremental Improvement in Career Education grant administered through the U.S. Office of Career Education.

PROGRAM DEVELOPMENT

The Locale

The Ceres Unified School District is located in Stanislaus County, which is in the heart of the Central Valley of California, one of the nation's great agricultural regions. The district serves approximately 4,200 students drawn from a rural/small-town community of about 12,000. The district is adjacent to the Modesto metropolitan area which has a total population of approximately 125,000.

The district is composed of one senior high school, a continuation high school, one junior high school, five elementary schools, a preschool program, a school for deaf and hard-of-hearing children, and an adult school. The community is dependent almost entirely on agriculture and agriculturally oriented businesses. The city of Ceres and surrounding area is experiencing a steady population growth of about 5% per year. A limited increase in business and industrial growth is evident, but the district continues at the bottom of the list of California districts in assessed valuation. Family income within the

school district boundaries is described as modest. Most families are said to fall within lower and middle socioeconomic classifications. Approximately 5% of the families in the district are migrant farm workers. The district has successfully passed recent bond approval and tax override elections as one result of intensive efforts to improve and extend community participation and involvement.

Identification of Needs

The Ceres career education program was developed in response to several concerns shared by teachers, administrators, and parents in the district. These groups suggested that many young people were completing their education without salable skills and without a positive orientation toward the world of work. The young people also appeared to lack training that would equip them to cope with a job market increasingly characterized by technological advances in agriculture, business, and industry. With over 70% of all students in the district terminating their school attendance at or before the 12th grade, the problem of inadequate preparation of young people for the world of work was acute.

Another locally-identified need was a deficiency on the part of young people in the basic skills of reading, writing, and computation. Employers, in particular, were concerned that many young people were unable to demonstrate these skills with an acceptable level of mastery. They believed that the situation could be improved if students were taught in school the reasons basic skills are needed for success in the job market.

In response to these needs, the staff of the district undertook to develop a comprehensive career education program aimed at preparing students to successfully enter the world of work. The process of program development included several teacher workshops, a staff survey, and the formation of several task forces, each charged with the development of one aspect of the program. The first year of the project was devoted to setting forth the career education goals and student outcome objectives for the entire project.

Goals and Objectives

All project activities are guided by a Career Education Matrix. This document contains the career education goals and student outcome objectives in ten areas of career education for the primary, intermediate, junior high, and high school levels. It also outlines the program objectives for administrative,

vocational education, and inservice aspects of the program. The goals and objectives set forth in this document are derived from definitions provided by the Career Education Task Force of the California State Department of Education and the United States Office of Education. The ten areas of career education contained in the matrix, the associated goals, and sample performance objectives are as follows:

<u>Career Education Area</u>	<u>Goals</u>	<u>Sample Objectives</u>
1. Career awareness	Students will develop and demonstrate a continuing awareness of career opportunities and relate them to their aptitudes, interests, and abilities.	Students will describe five jobs chosen from two or more career clusters and will identify clusters which best fit their abilities and aptitudes.
2. Self awareness	Students will develop a positive attitude toward self and others, a sense of self-worth and dignity, and motivation to accomplish personal goals.	Students will identify three or more positive qualities in themselves or in classmates.
3. Career preparation	Students will acquire skills leading to entry level employment in one or more careers with provision for advanced training.	Students will be able to successfully complete three different types of job application forms, complete a resume, demonstrate acceptable procedures for participating in a job interview, and list eight sources for finding job openings.
4. Educational awareness	Students will recognize that their educational experiences are part of their total career preparation and development.	Students will be able to identify skills needed for jobs and tell where in school the skills are learned.
5. Career planning and decision making	Students will increase their self-knowledge and their knowledge of societal effects on the world of work and will accept responsibility for career choices compatible with their desired life-style.	Students will successfully complete a fill-in questionnaire on decision making.

<u>Career Education Area</u>	<u>Goals</u>	<u>Sample Objectives</u>
6. Attitude development	Students will develop a positive attitude toward work and leisure time activities, appreciate their contribution to self-fulfillment, and to the welfare and productivity of the family, the community, the nation, and the world.	Students will list jobs and relate them to human needs, and list jobs that will give them a feeling of self-worth.
7. Economic awareness	Students will understand the economic systems of our society, and the relation of productive work to the economy and to their own economic well-being.	By the end of the primary experience, given a list of occupations, students will be able to determine whether the occupation produces goods or services.
8. Career orientation	Students will participate in career orientation activities that will increase their exposure to the options available to them in the world of work.	Through career orientation activities, students will be able to list job opportunities outside a 75-mile radius of Ceres.
9. Consumer competencies	Students will achieve sufficient economic understanding and consumer competencies to make wise decisions in the use of resources, both personal and national.	By the end of the intermediate experience, students will be able to compare and contrast products in terms of price, quality, utility, and personal preference.
10. Career exploration	Students will plan and participate in a program of career exploration that will contribute to their personal and career satisfaction.	Students will demonstrate increased awareness of jobs that will meet their interests.

See Appendix A for a complete list of the project's goals and performance objectives.

Program Planning

The Ceres project has seven components that provide the organizational structure needed for implementation of the project: (1) administration, (2) elementary curriculum and inservice, (3) secondary curriculum, (4) secondary inservice field test, (5) vocational education, (6) guidance and counseling, and (7) media. Each component is the responsibility of one staff member of the project. The general nature of the components is described below.

Administration. This component provided for selection of staff, leadership, comprehensive detailed planning of the effort, general supervision of project staff, community awareness and involvement, budget management, and dissemination.

The management of the project was accomplished through the use of a Program Activity Management and Evaluation System (PAMES) Document. A chart was used to organize each of the seven project components into time, task, and talent (3T Chart) segments for each component except guidance which used another format. See Appendix B for a sample from the PAMES Document.

Goals and objectives with time lines for each component were identified and developed. These were included in the PAMES Document and were translated onto a wall chart to facilitate management and monitoring. Bimonthly meetings were scheduled and held with component leaders.

Dissemination efforts included a materials list, a compendium of infusion activities at the high school, regular reports to District, State and Federal Agencies, and Career Education Staff Presentations. At least 25 presentations were made by the local staff to outside groups.

Elementary Curriculum and Inservice. The elementary component concentrated on staff development, curriculum infusion, and the effect of both on student achievement. Inservice activities resulted in the production of an exportable model entitled Career Education Inservice Model (CEIM). The results of the inservice effort showed that teachers did learn the career education goals and objectives. Another thrust of the inservice was to infuse career education into academic areas so that academic achievement on standardized measures would increase. An inservice system to monitor this effort was developed and was entitled the Ceres Learning Assessment System (CLAS).

Secondary Curriculum and Inservice. The results of three years of research, experimentation, development, and evaluation provided the Ceres Unified School District with a model for career education which is substantially implemented in all schools. At the secondary level, a Career Education Master Plan Committee was formed to organize all phases of the career education project into an articulated Ceres Career Education Model. One of the major thrusts of the Master Plan Committee was the infusion of career education into all classrooms as appropriate to provide meaning, relevancy, and purpose to all courses and students.

Over 125 Learning Activity Packages (LAPs) were developed by teachers and implemented in the classroom. These materials integrate career education themes with academic subject matter. Many LAPs were developed from academic course

guides, which were revised to include career education objectives and activities. The LAPs also include suggested resources, unit tests, and worksheets. The development of the LAPs was a central aspect of the inservice program. Teachers were provided assistance in developing the LAPs and they received extra pay, either at an hourly rate or on a performance contract basis.

A teacher resource book, The Ceres Compendium of Career Education Infusion Activities was also developed and is available for national distribution. The Compendium provides teachers with many examples of career education classroom activities for most courses taught in math, science, social studies, language arts, music, and art. Included in these six subject areas are over 20 courses, 100 topics, and 2,000 career education activities. School districts that are interested in adopting Project CERES will find the Ceres Compendium of Career Education Infusion Activities a valuable resource.

The Compendium was developed by a committee which included representatives from academic teachers, vocational teachers, counselors, administrators, and the State Career Education Task Force. The format determined by the committee to be most appropriate for teacher use included the following categories: subject area; courses in each subject area; topics or units in each course; and the career education objectives of career awareness, career exploration, career preparation, career knowledge, career skills, and career attitudes. The committee felt that for optimal use by teachers the Compendium had to be developed according to subject matter courses rather than the U.S. Office of Education (USOE) clusters. A cross referencing system was added so that all activities were also categorized by the USOE clusters.

In addition to the materials produced and the related inservice activities, data were collected on student performance in grades 8, 9, and 12 related to the career education objectives.

At both the elementary and secondary levels, teachers developed curriculum materials under a performance contract system that encouraged developers to be responsible for their work and that provided them with remuneration for their efforts. The contract represents an agreement by teachers to produce within a given time period a unit which includes both materials and teaching strategies. Curriculum staff members provide support and assistance to the developers. Upon satisfactory completion of the product, the developer receives 75% of the amount of money specified in the contract. The remaining 25% is paid after the unit is taught and after evaluation data have been collected and necessary revisions are made.

A similar contract performance system is used with regard to the inservice component of the program. This system was instituted because of a general feeling that the responsibilities of the participants of the workshops were insufficiently spelled out. This was particularly true with regard to the responsibility of sharing the results of the workshop with teachers who were not able to attend. Accordingly, a service contract was drawn up which specified the responsibilities of the participants as well as the rate of pay. The contracts, signed by the participants and the workshop leader, clearly specify the responsibilities of the parties involved.

Vocational Education. A major goal of the program was to develop a series of entry level skills checklists. Seventeen job entry level skills checklists were developed and validated by the Project CERES Career Education Advisory Council and by local employers in various areas. Standard job skills developed by the Job Corps were used as a basis for this effort. Skilled persons in various occupational areas were asked to update the lists and to make changes to meet local job skill demands. Due to demands on staff time, checklists had not been field tested as of this writing. It is anticipated that skills lists will be used, however, beginning with the summer work experience program.

The skills lists, which are divided into four major areas, include:

(1) training elements (basic occupational skills), (2) educational and technical knowledge (including academic basics in math and English), (3) job physical profiles (physical abilities necessary for effective job performance), and (4) attitudes and professional ethics (willingness to learn, respect for others, responsibility, etc.). It is expected that as these lists are refined students will become more aware of actual job requirements. Also, employers and teachers will have a meaningful tool to evaluate student progress. The eventual outcome will be students who are better prepared for the world of work.

During the fourth year of the project, some of the technical skills lists developed during the first three years were further refined and field tested. Refinement of technical skills lists included the identification of entry level skills, standards of performance and methods of evaluating the attainment of each skill. This information was reviewed by vocational education advisory committees before being used in the classroom. See Appendix C for an example of a skills list.

In addition to the development of entry level technical skills, a list of 20 attitudinal skills was developed using advisory committee input. This list consisted of attitudes and behaviors in vocational classes that predict worker

attitudes and behaviors. The skills list was field tested in vocational classrooms. Project CERES has received funding through a Vocational Education Subpart 3 grant to develop a curriculum model in the area of attitudinal skills. This document should be available for dissemination in July 1979.

Another emphasis of the program was the development of secondary skill course guides to include appropriate objectives as associated with goals 4.0, 5.0, and 7.0 of the Ceres Career Education Matrix (see Appendix A). Secondary skills course guides were surveyed and a format was determined. First priority was given to the agriculture area since this department has developed the program concept calling for students to select an area of concentration rather than individual classes. Project staff believed that goals 4.0, 5.0, and 7.0 could best be phased into the course guides through the programs rather than through isolated classes. Thus, as students complete the program over a four-year period, they should theoretically complete the objectives of educational awareness, economic awareness, and career planning and decision making.

Guidance. In the course of developing and implementing the Ceres project, it became apparent to the staff that a comprehensive guidance program covering grades K-12 was needed. Accordingly, a steering committee was formed consisting of representatives of all grade levels plus administrators. The committee worked for two years to research, plan, and prepare for the implementation of an articulated guidance program with career emphasis. The committee developed specific goals for the program: to infuse a career interest and emphasis into the curriculum at all levels, with a plan to coordinate the cognitive, affective, and psycho-motor factors in students' learning experiences and personal development. The cost of the development and implementation of this program was jointly financed through career education and district funds. The heaviest expenditures were spent on inservice training of staff personnel.

The goal of the Ceres articulated guidance program is to provide services that assist all students in gaining maximum benefits from their educational and career opportunities as they prepare for their long-range career goal and entrance into the world of work. To accomplish this goal, district personnel are concerned with:

- an integration of activities and resources into guidance and counseling, beginning with preschool and extending into the transition period following secondary school into continuing education or at the job entry level in a career role.

- establishing provisions for the compilation and utilization of information to support each individual in working toward his/her potential and in resolving developmental barriers.
- the coordination of combined efforts and activities of parents, teachers, support personnel, administrators, industry, community agencies, and related personnel, with all parties working to achieve cooperatively identified aims.
- development and expansion of educational and career experiences that contribute to each learner's self-knowledge, interpersonal relations, effective use of leisure, and preparation for adult responsibilities.
- emphasizing developmental and preventive activities at the pre-school and primary levels, designed to minimize the necessity of remedial efforts at later levels.

To insure the achievement of these purposes, the articulated guidance program is planned, implemented, and monitored through a management structure that identifies the direction and coordination of activities, resources and personnel as district level responsibilities.

Media Center. The dual purposes of the media center are to deliver high quality printed materials to teachers and students, and to provide training for students in the field of communications and graphic arts. During 1974-75, an average of more than 25,000 sheets of paper were run through the presses each day. Classroom materials, such as tests and worksheets, as well as teaching units or learning activity packages are printed. Additionally, nearly 100 students from five Stanislaus County high schools are being trained in typesetting, layout and design, newspaper production, printing, photography, and other communication arts. The media center operation includes five course offerings in newspaper production, under which students from Ceres High School as well as high schools in Modesto and one in Turlock produce their own school newspapers plus occasional news magazines or literary magazines. Students receive instruction in typesetting, layout, paste-up, editing, display, process camera work, platemaking, and (a few) in offset printing. Emphasis is on giving journalism-oriented students the mechanical skills required for production of a newspaper via the photo-offset printing process.

MATERIALS AND ACTIVITIES

The project has emphasized not only the development of curriculum models and objectives for career education but also the production of materials to

implement or provide for the teaching of the curriculum. Over 100 Learning Achievement Packages and other units of instructional materials have been developed and field tested. A variety of commercially available materials is used to supplement the locally developed materials.

To illustrate the planned progress of students through the Ceres career education curriculum, the following description is given of typical experiences. In the K-6 grades the curriculum includes career simulation games, learning center activities, study trips, and presentations by community resource persons to develop awareness of the many types of jobs available in the world of work. The exact number and nature of these experiences vary with the individual teacher. However, all participating teachers are aware of the student goals and objectives depicted in the Career Education Matrix, and it is expected that the impact of the experiences provided will lead to achievement of the objectives.

On entering the seventh grade, students are scheduled into a nine-week guidance class where they are administered a number of inventories and participate in self-awareness units designed to develop awareness of personal attributes such as values, interests, and other personality characteristics. Again, in the eighth grade, students are scheduled into a nine-week guidance class where the concepts of self in relation to potential careers developed in earlier years are extended and refined. At this time, students do an in-depth exploration into careers which match their interests and, in cooperation with parents, teachers, and counselors, plan a four-year high school program. This program planning involves not only selection of classes, but also of clubs, activities, and possible types of work experience in which students might become engaged during the high school years.

In the ninth grade, career education emphasis is placed upon developing such job application skills as interviewing and preparing resumes. In the tenth grade a portion of each student's mathematics, science, language arts, and social studies classes is directed to teaching how the contents and skills of each discipline are related to individual career choices. During the junior and senior years, students take classes which could include vocational education skills classes (either provided by the district or regional programs) or work experiences.

Throughout their four years of high school, students are encouraged to take advantage of a wide variety of vocational education classes, whether they are college bound students or not. The district believes that all students should have entry level skills upon graduation whether they plan to attend college or not.

As students enter their junior and senior years, a wide variety of special technical vocational classes are available to them through the regional occupational program.

By graduation, it is anticipated that students will have developed understandings of themselves and the career world, a career plan which may include some form of post-high school education, and a salable skill. The emphasis throughout the entire K-12 curriculum is to connect subject matter with the world of work in all classes, whenever possible and appropriate.

At the junior and senior high level, a series of instructional units are available that are designed for the achievement of specific career education objectives. They were developed by teams of teachers in consultation with project staff and the district curriculum specialist. Four units have been produced for use at the eighth, ninth, eleventh, and twelfth grades. They are described in Appendix D.

PARENT AND COMMUNITY INVOLVEMENT

The project has provided for considerable involvement of the community in the planning, implementation, and information dissemination efforts. Community members from labor, industry, business, and parent groups participate on advisory boards as experts in defining the current requirements for various careers. Community members also participate directly in the work experience, vocational education, and Regional Occupational Programs. The project has emphasized the need to publicize career education concepts and the development of the new curricula through newspaper accounts, project mailings, and public appearances. The community response to career education is described as excellent and there appears to be considerable support for the concept of career education.

STAFFING AND MANAGEMENT

Staffing

The overall purpose of Project CERES is to infuse career education concepts into the general elementary and secondary curriculum. As an infusion approach, the project can operate within the framework of existing school staffing arrangements. Because it is curriculum-oriented, it does not require changes in regular staffing assignments, duties, or procedures. In most small- to moderate-sized school districts, the management responsibilities of coordinating the project can be assumed by an existing administrator, teacher, or curriculum specialist.

Large districts, however, may need to employ a part-time person to coordinate the project activities. A part-time clerical person may also be needed to assist the project coordinator. Additionally, consultants will need to be hired during the initial year of the project to conduct inservice training for the participating teachers. These teachers, in turn, can conduct inservice training for new teachers during subsequent years.

The management responsibilities and qualifications of the project coordinator are shown in the chart below.

<u>Project Coordinator</u>	
<u>Management Responsibilities</u>	<u>Qualifications</u>
Arrange and organize the inservice training	Administrative experience and credentials
Act as liaison with Project CERES	Interest and skill in curriculum development and career education
Monitor the implementation of the project	Ability to establish and maintain good interpersonal relations with teachers
Prepare evaluation materials	Familiarity with the basics of educational program evaluation

Management

As discussed in an earlier section (see page 6), the management of the project was accomplished through the use of a Program Activity Management System (PAMES) document. In addition, time, task, and talent (3T) charts were used to organize each component of the project. As noted earlier, the project includes 10 components, each component having its own set of goals and objectives. To determine whether the objectives have been achieved, certain process objectives are stated, along with the optimum point during the year when they are to be achieved, and information is gathered to indicate the extent to which these objectives were achieved. Presented below are some of the process objectives achieved by September 1975 in key components of the project.

Administrative component. The following process objectives from the administrative component were attained.

- Develop a Program Activity Management and Evaluation System (PAMES) Document designed to permit efficient administration of the project as a whole, including budget control and management; develop statements of goals and objectives fitted into the Career Education Matrix for the district; develop Time-Task-Talent charts for each component, and procedures for monitoring developments within each component and facilitating staff activity.
- Develop and implement a system for dissemination of career education materials and information to the district staff.
- Develop a budget with categories established and related to each component, appropriate accounting procedures, and expenditures within the budget categories.
- Prepare quarterly and final reports to the funding agency, and more frequent reports to the local school board.
- Develop a program for increased community awareness and support of the career education program.

Elementary Curriculum and Inservice. The process objectives for this component, in general, provide inservice experiences for teachers and administrators to enhance their ability to infuse career education concepts and experiences into the elementary curriculum. A sampling of these objectives is presented below:

- As indicated by observation checklist, 90% of participating elementary teachers will infuse career education concepts with reading, math, and/or social studies.
- One hundred percent of targeted teachers will develop and/or implement during 1975-76 materials/strategies based on techniques studied during the inservice training sessions. (Verified by teacher log.)

Secondary Career Education Curriculum Development. Objectives within this component include the following:

- Develop a master plan for career education at the secondary level (grades 7-12) involving representatives from the administration, curriculum council, and teachers association, thus obtaining agreement on the plan from the major political and professional groups present in the district.
- Develop an organized curriculum structure providing general academic, career, specialized vocational skill, and guidance experiences for all students.
- Ensure joint participation by students, parents, and guidance personnel in the planning of individual student programs within the organized curriculum structure.

- Ensure the cross-fusion of vocational education and general academic courses, the general academic classes providing information related to possible careers and the vocational education classes reinforcing basic skill instruction.
- Place an articulated series of career education events and activities for grades 7-12 within the curriculum structure.
- Develop an extensive set of teaching units, Learning Activity Packages, curriculum guides, and a compendium of field-tested career education activities and materials related to the Career Education Matrix.
- Increase the participation of guidance and teaching personnel in the career education program.

Secondary Inservice Field Test Component. Objectives within this component provide specific procedures and checkpoints for the development and field (i.e., classroom) testing of materials at the secondary level, inservice programs for targeted secondary level classroom teachers, and the specifications for contracting with targeted teachers for materials development. The objectives are stated to indicate the required series of events for development of quality materials. Some sample objectives are as follows:

- The Compendium of Career Education will be expanded to include all subject area courses as evidenced by the completion of the Compendium.
- Teacher classroom use of career education activities will be increased, as measured by a pre-and-post student and teacher survey.
- The seventh, eighth, and ninth grade staff will complete the following:
 - update course guides to include more career education objectives and activities
 - update and develop new career education materials
 - develop and implement a plan for better use of community resources
 - counselors and teachers will develop more career awareness to better assist students as evidenced by a criterion-referenced test.

Secondary Vocational Education. The general intent of the objectives listed for this component is to provide for improvement of vocational education skills courses and work experience programs. Earlier, reference was made to an additional intent to reinforce the teaching of basic academic skills in the vocational education classes. Particular emphasis among the objectives is directed to the development of:

- Technical and attitudinal skills checklists validated by either employers or members of the vocational education advisory committee; the purpose of the checklists is to provide measures of specific skill outcomes from vocational education classes.

- New vocational education skill course guides which will be extended or revised to provide for the achievement of appropriate student outcome objectives found within the Career Education Matrix.
- Entry level data gathered through the skills checklists on all students entering 30 selected vocational or work experience stations.

Guidance and Counseling Component. Original planning documents for the Ceres project express as one major goal the creation of a "guidance attitude" among all staff members in the district. The one objective contained within the 1974-75 PAMES for the component is concerned with providing inservice education for teachers and counselors. Seven sub-objectives indicate with more specificity the events and responsibilities required to implement the inservice program.

Some recent process objectives for this component include the following:

- Implement the articulated guidance activities as listed in the Ceres Articulated Guidance Program.
- Measure impact of the program upon students by collecting outcome data.
- Continue inservice sessions with staff.
- Continue development of information regarding career clusters for helping students who are making decisions in high school.
- Continue the comprehensive emphasis that includes all children pre-school through grade 12, which includes special education students.
- Include Career Guidance Center at the high school as an important part of the overall program.

Media Center Component. The purposes of the Media Center are to combine a pupil instruction function with the production of high quality printed materials for teachers and students. Thus, the component may be viewed simultaneously as part of the vocational education program and as part of the materials development/dissemination effort. With regard to the materials development/dissemination effort, records show the printing of an extensive array of attractively packaged teaching units, Learning Activity Packages, course guides, etc. The Media Center level of production averages approximately 25,000 pieces of printed paper per day. Anecdotal evidence and testimony were provided to indicate that students who are trained in the Media Center leave the program with considerable advantage over students who have not had the experience in related post-secondary education programs, in apprenticeship programs, and in immediate employment.

Inservice Training

Since the project's inception in 1972, the inservice training of teachers and other staff has been an essential element in its success. In most cases, the inservice training workshops are organized, implemented, and evaluated by various task forces formed for this particular purpose. To illustrate the format of the workshops, a brief narrative is presented below describing two workshops in terms of their purposes, organization, instructional procedures, and participants.

Summer Inservice. During the first three weeks of July 1974, an inservice workshop was conducted for elementary school teachers. The primary purposes of the elementary workshop were: (1) to facilitate the integration of career education concepts into the curriculum, (2) to improve teaching strategies, (3) to analyze the basic skill areas of math and reading, (4) to produce a list of current community resources, and (5) to develop teams of teachers to serve as resources for their respective staffs.

Twenty classroom teachers and four resource teachers participated in the workshop. Each elementary school was represented by at least two teachers. Four of the teachers had been a part of the 1973-74 Career Education Matrix team; the rest of the teachers were not familiar with the Career Education Matrix development or implementation. All participants volunteered for the workshop.

The workshop participants were organized into task committees in the following areas: reading, math, simulations and gaming, learning centers, and community resources. The general responsibilities of each group were to review the relevant state goals and objectives, examine the present testing program in light of the state goals, develop criterion-referenced tests where needed, and develop a monitoring system for achieving the goals.

The first day the teachers were given a questionnaire which assessed their knowledge of the Ceres Career Education Matrix, the academic skill matrices, and teaching strategies and techniques. On the final day of the workshop, the same instruments were administered. Additionally, an anonymous evaluation was completed by the participants to assess attitudes.

Leadership Workshop. The purposes of the leadership workshop held in August 1974 were to: (1) communicate results of the teacher workshop to administrators and resource personnel, (2) provide an inservice model, (3) provide group process techniques, (4) secure administrative support for participating teachers, and (5) provide curricular articulation between elementary and secondary levels. Thirty-four central administrators, building principals, and support personnel attended the 15-hour August workshop.

The workshop participants were first given a questionnaire which asked them to rate their own knowledge of the Career Education Matrix, academic matrices, resources, and instructional techniques. Immediately following, a test was administered to assess the participant's knowledge of the Career Education Matrix, academic matrices, resources, and techniques. For the most part, there was considerable discrepancy between the questionnaire responses and the results of the test. This experience set the stage for concentrated instruction in each of the specific areas.

Following the workshop, participants were given a posttest, a questionnaire, and an anonymous evaluation. They were also required to submit an outline of their 1974-75 implementation plan.

COSTS

The costs associated with adopting the project are presented in the chart below; figures do not include development costs. The half-time coordinator and the part-time clerical person are sufficient to supervise 25-30 participating teachers. The costs associated with personnel training are based on the system used at Ceres whereby teachers are paid for inservice training at the rate of \$10 per hour. The greatest cost would be in the inservice training and workshops; but once the staff is trained, materials and community resources could be produced internally and tailored to each district.

	<u>Level of Funding</u>	
	Installation (Non-Recurring Costs)	Subsequent Years (Recurring Costs)
Personnel		
Coordinator (half-time)	\$8,000	\$8,000
Clerical (part-time)	4,000	4,000
Personnel Training (payment to 30 teachers for 30 hours of inservice training)	9,000	0
Consultant(to conduct inservice training for 30 teachers, at \$125 per day)	375 (3 days)	125 (1 day)
Facilities	0	0
Materials	100/class	50/class
Consumables	25/class	25/class
Transportation (for field trips)	150/class	150/class
Total:	\$21,650	\$12,400

These costs can be substantially reduced by providing academic credit or other incentives for participating teachers in lieu of payment.

EVIDENCE OF EFFECTIVENESS

Student Outcome Evaluation

The project staff developed an extensive evaluation design for each year of the project to assess student attainment of objectives in each of the ten areas of career education previously discussed. Several research designs for determining the effects of the career education program on targeted students were utilized. These included a case study design, a one-group pretest-posttest design, and a pretest-posttest comparison group design without benefit of random assignment of either teachers or students to the treatment groups.

The discussion which follows is concerned with the outcome evaluations of student achievement conducted during the 1973-74 school year for grades K-6. The evaluation design utilized pre- and posttests on treatment and control groups. The 1973-74 school year was selected as a focus here because during subsequent years almost all teachers in the district were teaching career education in some form. Thus, it was difficult to identify a control group in the subsequent years that had not been exposed to career education concepts.

Four of the five district elementary schools were represented in the evaluation sample in 1973-74. Treatment group students were randomly selected at each school from classes of teachers who volunteered to take part in the project. Four primary (grades K-3) and four intermediate (grades 4-6) classes received the career education treatment. Five primary and four intermediate classes served as control groups for the evaluation. The teachers in the control group also volunteered to participate in the evaluation. Every attempt was made to select teachers to participate in the control group who were just as enthusiastic and committed as were the teachers in the treatment group. The treatment and control classes were closely matched in terms of sex composition, academic achievement, age, ethnic composition, and pretest scores.

Measures. The Primary Career Objectives Test (PCOT) and the Intermediate Career Objectives Test (ICOT) were used to assess the achievement of the treatment and control groups. A pool of test items was derived from the project objectives. The items were pilot-tested on several classes at a local school

and revised. The major concern at this stage of the development process was to formulate questions that were understandable and appropriate for the students, that addressed the project's objectives, and that discriminated treatment from non-treatment students. Since the evaluators were primarily interested in testing students in the achievement of career education objectives, not in basic skills, the decision was made to use a structured interview format for administration of the tests. The PCOT contained seven questions related to the program objectives. The ICOT contained ten questions. The items closely reflected the career education goals and objectives discussed earlier.

Credibility of Evidence. The PCOT and ICOT were individually administered to the 1973-74 treatment and control students by a team of students from the Argus Continuation High School in October 1973 (pretest) and May 1974 (posttest). The high school students were given training in the administration of the instrument, and they were not aware which subjects were in the experimental or the control group. Test administration was conducted under conditions which reduced bias to a minimum. All students were thoroughly instructed in procedures to make the conditions of the interview as consistent as possible. Tests were scored by resource teachers and substitute teachers under the supervision of project staff. Data analysis was conducted by a consultant retained by the project.

Evidence of Impact. Student achievement was assessed by comparing the posttest scores of the control group with the posttest scores of the treatment group. The t-test for independent groups was used to analyze the mean group differences on the posttest, the results of which are shown in Tables 1 and 2.

Table 1
Mean Posttest Scores of Treatment and Control Group
on Primary Test of Career Objectives (PCOT)

<u>Treatment</u>			<u>Control</u>			<u>t</u>
<u>N</u>	<u>$\bar{X}$</u>	<u>S.D.</u>	<u>N</u>	<u>$\bar{X}$</u>	<u>S.D.</u>	
57	22.3	14.9	55	14.9	7.7	3.30*

* Significant at .05

As can be seen, the means of the treatment groups are significantly higher than those of the control group on the posttest. Thus, one can conclude that the treatment had a significant positive impact on the participating students.

Table 2

Mean Posttest Scores of Treatment and Control Groups
on Intermediate Test of Career Objectives (ICOT)

<u>Treatment</u>			<u>Control</u>			<u>t</u>
<u>N</u>	<u>$\bar{X}$</u>	<u>S.D.</u>	<u>N</u>	<u>$\bar{X}$</u>	<u>S.D.</u>	3.95*
56	32.3	10.3	56	24.4	10.1	

* Significant at .05

Favorable Review by Joint Dissemination Review Panel

The Joint Dissemination Review Panel (JDRP) was established by the Education Division of the Department of Health, Education, and Welfare in 1972. The joint U.S. Office of Education - National Institute of Education (NIE) Panel currently has 22 members, eleven from each agency, appointed respectively by the Commissioner of Education and the Director of NIE. The JDRP meets periodically to review the evidence of effectiveness submitted for a wide variety of federally supported educational products and practices, with effectiveness being the sole criterion for approval by the JDRP. It is charged with the responsibility of ensuring that educational interventions - projects, products, or practices - have been shown to have positive impacts on their recipients before they are disseminated with federal funds or endorsed by the Education Division.¹

In May 1978, the JDRP reviewed Project CERES and approved the primary segment (grades K-3) of the program for nationwide dissemination. With regard to the intermediate component (grades 4-6) of the program, the Panel considered the evidence of effectiveness furnished by the project to be insufficient to warrant approval. However, the Panel encouraged project staff to submit new data at a later time on the effectiveness of the intermediate component. This information is provided so that those school districts interested in adopting Project CERES may have the advantage of the Panel's suggestions.

¹Tallmadge, G.K. The Joint Dissemination Review Panel: IDEABOOK. Washington, D.C.: NIE/DHEW, September 1977.

CONCLUSION

The research design utilized in the evaluation allows one to attribute the observed posttest differences between treatment and control groups to the career education treatment. The treatment and control groups were closely matched in terms of sex composition, academic achievement, age, and ethnic composition. The educational experiences of the two groups were similar except for the fact that the treatment group was exposed to the career education program. The use of a comparable control group permits the ruling out of other variables as being responsible for the results.

The evaluation provides strong evidence that Project CERES produced educationally meaningful results. The level of statistical significance obtained indicates that the results were not a result of chance. In addition, the growth of the treatment group students was in areas important to career education. Moreover, the materials, curricula, and practices of the project can easily be adopted elsewhere. To adapt and implement the program efficiently, adopting districts should make use of a document similar to PAMES. This document contains all the process goals for the various components of the program. Another useful instrument for implementing the project are the 3T charts (time, task, and talent). These charts specify the responsible person and the time-lines for accomplishing each task that is necessary for implementing the project. Each of these documents should be adapted to the unique needs and circumstances of the district implementing the program.

Appendix A

Career Education Goals and Performance Objectives

CAREER EDUCATION GOALS

- 1.0 Career Awareness
GOAL: Students will develop and demonstrate a continuing awareness of career opportunities and relate them to their aptitudes, interests, and abilities.
- 2.0 Self Awareness
GOAL: Students will develop a positive attitude toward self and others, a sense of self-worth and dignity, and motivation to accomplish personal goals.
- 3.0 Attitude Development
GOAL: Students will develop a positive attitude toward work and leisure time activities, appreciate their contribution to self-fulfillment, and to the welfare and productivity of their family, community, the nation and the world.
- 4.0 Educational Awareness
GOAL: Students will recognize that their educational experiences are a part of their total career preparation and development.
- 5.0 Economic Awareness
GOAL: Students will understand the economic systems of our society, the relationship of productive work to the economy, and to their own economic well being.
- 6.0 Consumer Competencies
GOAL: Students will achieve sufficient economic understanding and consumer competencies to make wise decisions in the use of resources -- personal and national.
- 7.0 Career Planning and Decision-Making Skill Development
GOAL: Students will increase their self-knowledge and their knowledge of societal effect on the world of work and will accept responsibility for their choices in career development compatible with their desired life style.
- 8.0 Career Orientation
GOAL: Students will participate in career orientation activities that will increase their exposure of the options available to them in the world of work.
- 9.0 Career Exploration
GOAL: Students will plan and participate in a program of career exploration which will contribute to personal and career satisfaction.
- 10.0 Career Preparation
GOAL: Students will acquire skills leading to entry-level employment in one or more careers with provision for advance training and continuing education.

PRIMARY OBJECTIVES

1.0 Career Awareness

- 1.1 By the end of the primary experience, the student will be able to name an occupation he would like for himself, and tell why he would be good at that occupation and enjoy it. The student will be able to do the same for an occupation he would not like to have.

2.0 Self Awareness

- 2.1 By the end of the primary experience, the student will be able to identify personal qualities about himself.

3.0 Attitude Development

- 3.1 By the end of the primary experience, the student will demonstrate a positive attitude toward work by volunteering for, and participating in at least three classroom tasks requiring continuous responsibility.
- 3.2 By the end of the primary experience, the student will demonstrate a positive attitude toward leisure time activities by showing an increase in his awareness of leisure time activities.

5.0 Economic Awareness

- 5.1 By the end of the primary experience, given a list of occupations, the student will be able to determine whether each occupation produces goods or services.

6.0 Consumer Competencies

- 6.1 By the end of the primary experience, the student will be able to make wise decisions in the use of personal resources.

7.0 Career Planning and Decision-Making Skill Development

- 7.1 By the end of the primary experience, the student will be able to name an occupation he would like for himself, and tell why he would be good at that occupation and enjoy it. The student will be able to do the same for an occupation he would not like to have.

8.0 Career Orientation

- 8.1 By the end of the primary experience, the student will increase the number of options available to him in the world of work.

9.0 Career Exploration

- 9.1 By the end of the primary experience the student's knowledge of his/her parent's occupation will increase by at least 50%.

10.0 Career Preparation

- 10.1 By the end of the primary experience the student's knowledge of the skills involved in performing in a job will increase by at least 50%

INTERMEDIATE OBJECTIVES

1.0 Career Awareness

- 1.1 By the end of the intermediate experience, given a student selected job, the student will identify the following:
 - a. the skills required
 - b. the training required
 - c. the tasks performed

2.0 Self-awareness

- 2.1 By the end of the intermediate experience, the student will be able to describe himself by four out of five of the following qualities:
 - a. interests
 - b. physical characteristics
 - c. habits
 - d. preferences
 - e. skill abilities
 - f. personality traits
- 2.2 By the end of the intermediate experience, the student will be able to describe a selected classmate by naming four out of five of the following qualities:
 - a. interests
 - b. physical characteristics
 - c. habits
 - d. preferences
 - e. skill abilities
 - f. personality traits

3.0 Attitude Development

- 3.1 By the end of the intermediate experience, given a student selected job, the student will tell three satisfactions they would obtain from working at it.
- 3.2 By the end of the intermediate experience, given a student selected job, the student will indicate how it contributes to the welfare and productivity of his family and/or the community.

4.0 Educational Awareness

- 4.1 By the end of the intermediate experience, the student will name two jobs for which competency in each of the following school subjects is essential:
 - a. reading
 - b. math
 - c. spelling
 - d. science

5.0 Economic Awareness

5.1 By the end of intermediate period, given the task of depicting the act of making a purchase, the student will include the following:

That the ways payment can be made include:

- a. money
- b. exchange of goods/service
- c. credit card
- d. check
- e. trading stamps

5.2 By the end of the intermediate period, the student will demonstrate that if there is not sufficient money, it is possible to rent money from several sources.

6.0 Consumer Competencies

6.1 By the end of the intermediate experience, the student will compare and contrast two similar products in terms of three out of five of the following characteristics:

- a. price
- b. quality
- c. packaging
- d. utility
- e. personal preference

7.0 Career Planning/Decision Making

7.1 By the end of the intermediate experience, the student, in planning his/her day, will include three out of five of the following:

- a. what is to be accomplished
- b. materials needed
- c. time requirements
- d. evaluation
- e. future plan

8.0 Career Orientation

8.1 By the end of the intermediate experience, given resources such as TV, films, and magazines, the student will be able to name ten job opportunities which exist outside Ceres by a radius of at least 75 miles.

9.0 Career Exploration

9.1 By the end of the intermediate experience, the student's knowledge of a job he/she would like will increase by at least 50%.

10.0 Career Preparation

10.1 By the end of the intermediate experience the students will participate in activities that will increase their knowledge of the personal qualities essential to getting and maintaining a job.

JUNIOR HIGH OBJECTIVES

1.0 Career Awareness

- 1.1 By the end of the 8th grade, the students will match 5 or more specific jobs to 12 of the 15 clusters.
- 1.2 By the end of the 8th grade, the students will be able to describe 5 jobs within at least two clusters and identify the occupational clusters to which his aptitude, interests, and abilities best relate.

2.0 Self Awareness

- 2.1 By the end of the 8th grade, the students will be able to identify 3 or more positive qualities of 10 members of the class.

3.0 Attitude Development

- 3.1 By the end of the junior high period the students will demonstrate at least a 50% increase in their knowledge of the personal factors involved in getting and keeping a job.

4.0 Educational Awareness

- 4.1 By the end of the junior high period the student will select from the high school courses those essential to their graduation with a 75% accuracy.

7.0 Career Planning & Decision Making

- 7.1 By the end of the junior high program the students will demonstrate at least 50% more training necessary to enter their chosen occupation.

8.0 Career Orientation

- 8.1 By the end of the junior high experience the students in the Special Education classes will demonstrate at least 50% more understanding of the career options available to them.

9.0 Career Exploration

- 9.1 By the end of the junior high experience, the students will demonstrate at least 50% more knowledge of what jobs meet their interests.

10.0 Career Preparation

- 10.1 By the end of the 8th grade, the students will be able to list at least 5 sources that the students could use to find job openings.
- 10.2 By the end of the 8th grade, the students will be able to list the steps taken in getting a job.

HIGH SCHOOL OBJECTIVES

1.0 Career Awareness

- 1.1 By the end of the senior high experience, students will demonstrate at least 50% more knowledge of careers.
- 1.2 By the end of the 9th grade, the students will be able to list the advantages and disadvantages of three jobs which interest them.

2.0 Self Awareness

- 2.1 During the 12th grade, the student will be able to analyze at least five positive self-characteristics which will help them succeed in a career.
- 2.2 During the 12th grade, the student will demonstrate to the teacher's satisfaction his/her ability to work in a positive and cooperative manner with others in the class.
- 2.3 During the 9th grade, the student will demonstrate a functional need for an education by developing a career preparation plan suitable to his aptitude, interest, and abilities.

3.0 Attitude Development

- 3.1 During the 12th grade, the student will select two occupations compatible with his/her characteristics that can contribute to his/her family and society, and identify ways in which the student can achieve dignity and self worth.
- 3.2 During the 12th grade, the students will identify their attitudes toward work and describe these attitudes to the teacher's satisfaction.

4.0 Educational Awareness

- 4.1 During the 9th grade, the student will list three abilities or skills necessary for successful entry into a career of their choice and will list where, in school, they can learn these abilities or skills.

5.0 Economic Awareness

- 5.1 During the 11th grade, the student will be able to demonstrate (in writing) his understanding of selected basic principles of the economic system of our society and the relationship of productive work to the system.

6.0 Consumer Competencies

- 6.1 During the 11th grade, the student will demonstrate (in writing) an understanding of selected financial and legal instruments that govern and protect workers and consumers.

7.0 Career Planning and Decision Making Skills

- 7.1 During the 9th grade, the student will demonstrate the ability to utilize the decision making process needed in developing personal career goals.

8.0 Career Orientation

- 9.1 During the 9th grade, the student will have developed and identified an in-depth exploration study of one job family in an occupational cluster suitable to his abilities and aspirations.

10.0 Career Preparation

- 10.1 During the 9th grade, the student will be able to:

- a. successfully complete at least three different types of job application forms.
- b. complete a resume.
- c. demonstrate acceptable procedures in participating in a job interview.
- d. list at least eight sources that the student could use to be able to find job openings.

Appendix B
Program Activity Management and Evaluation System (PAMES)

1.0 - Administrative Component

1.1.0 Develop a PAMES document which includes:

1.1.1 Activity Components

1.1.1.1 Administration

1.1.1.2 Elementary Curriculum and In-service

1.1.1.3 Secondary Curriculum

1.1.1.4 Secondary In-service Field Test

1.1.1.5 Vocational Education

1.1.1.6 Guidance

1.1.1.7 Media

1.1.2 3-T chart of Time, Task and Talent

1.1.3 Component budget analysis

1.1.4 Supervise and coordinate the identification and development of goals and objectives for each component, including appropriate time-lines.

8/1 - 9/15

1.1.5 Hold bi-monthly meetings to monitor activity component progress.

Continuing

1.1.6 Facilitate staff in meeting component goals and objectives.

Continuing

1.1.7 Supervise the development of component 3-T charts by staff.

9/1 - 10/15

1.1.8 Develop budget analysis by component. 9/1 - 10/15

1.2.0 Develop and implement an efficient and effective dissemination process of Career Education information.

1.2.1 A list of Career Education materials developed by and used in the Ceres school district, will be printed for distribution by September 1.

- 1.2.2 Monthly supplements will be added to the materials list, with complete revision made by November 1, February 1, and May 1, 1975.
- 1.2.3 Supervise local dissemination of appropriate Career Education materials.
- 1.3.0 Develop a budget with appropriate accounting procedures.
 - 1.3.1 Establish budget categories will be related to components, identifying budget amounts and anticipated expenditures.
 - 1.3.2 Budgeting, expenditure and accounting procedures will be established and maintained to show current catagorical encumbrances, expenditures and balances.
- 1.4.0 Supervise the preparation of quarterly, final and district reports.
 - 1.4.1 USOE final and quarterly reports will be compiled and submitted as scheduled.
 - 1.4.2 A public progress report on the status of Career Education in the district will be presented to the Ceres Board of Trustees at the end of the year. 5/1 - 6/15
- 1.5.0 Develop and implement a positive program which will increase community awareness of and involvement in Career Education.
 - 1.5.1 The Career Education Advisory Council will be reorganized to include active representatives of our economic society.
 - 1.5.2 The Career Education Advisory Council will meet at least four times during the year in regular meetings. Continuing
 - 1.5.3 At least 15 Career Education presentations will be made by the staff in the local community.



Appendix C
HEALTH OCCUPATIONS
Career Education — Vocational Education
Technical Entry Level Skills



Entry Level Skill	Standard of Performance	Method of Evaluation
1.0 Students will be able to find the mass of a solid object between 0.1 grams and 610.0 grams, using a standard triple beam laboratory balance.	1.1 Accuracy must be given to the decigram (0.1 gram).	Teacher observation of student performance. A skills check-off list will be used (see attached).
2.0 Students will be able to measure the volume of a liquid using a graduated cylinder.	2.1 Accuracy depends on the degree of accuracy of the cylinder. We use three types: large to 10 ml; medium to 1 ml, and small to 0.1 ml.	Teacher observation of student performance.
3.0 Students will be familiar with the metric system. Specifically the following units: meters, decimeters, centimeters, millimeters, microns, kilometers, kilograms, grams, milligrams, liters, milliliters, cubic centimeters.	3.1 Students will be able to make measurements using these units and know what the prefixes (such as kilo-) mean.	Teacher observation of student performance. Students must also pass a written test on prefix meanings.
4.0 Students will be familiar with the standard light microscope. They will know the locations and functions of the main parts. They will be able to mount a slide, set the right amount of light and focus at all powers of magnification and calculate total magnification. They will also be able to demonstrate the correct way to transport and store a microscope.	4.1 The maximum number of mistakes on the microscope oral quiz and demonstration will be two wrong out of fifteen.	Teacher observation of student performance on practical activities and oral test.



HEALTH OCCUPATIONS
Career Education — Vocational Education
Technical Entry Level Skills



Entry Level Skill	Standard of Performance	Method of Evaluation
5.0 Students will know the six pressure points and be able to determine pulse and respiration. Pulse will be taken at the wrist and sternum. Respiration will be determined by noting the rise and fall of the sternum.	5.1 Pulse $\pm$ beats per minute 5.2 Respiration $\pm$ breaths per minute.	At least two students will measure pulse and respiration of the same individual. Instructor comparison of results within the standard range will serve as the evaluation.
6.0 Students will be able to set up and use a snellen chart to measure the vision of another person.	6.1 Accuracy: Vision will be measured to the last line correctly read plus any letters of the next line.	At least two students will measure vision of the same individual. Instructor comparison of results within the standard of performance will serve as the evaluation.
7.0 Students will be able to measure the blood pressure of another person, using an aneroid sphygmomanometer and a stethoscope.	7.1 Accuracy: $\pm$ 10 mm of mercury.	At least two students will measure the blood pressure of the same individual. Each student will take three measurements. Instructor comparison of results within the standard range will serve as evaluation.
8.0 Students will be able to take the temperature (oral) of another person using a Fahrenheit or Celsius thermometer.	8.1 Accuracy: $\pm$.2f° or $\pm$.2c°	At least two students will take temperature of the same individual. Instructor comparison of results within the standard range will serve as the evaluation.
9.0 Students will be able to take the height and weight of another person, using a standard scale.	9.1 Accuracy: $\pm$ $\frac{1}{4}$ lb. and $\pm$ $\frac{1}{4}$ inch.	At least two students will measure the height of the same individual. Instructor comparison of results within the standard range will serve as the evaluation.
10.0 Students will be able to wash their hands in a prescribed medical way so as to prevent re-contamination.	10.1 Students will be allowed <u>no</u> mistakes.	Evaluation will be done by qualified hospital personnel during the observation part of the course.

Appendix D

Junior and Senior High Level Instructional Units

Exploring the World of Work - Eighth Grade

This introductory unit was designed to provide an overview of considerations relevant to choosing a career and to encourage students to examine themselves in the light of basic career information.

Specific matrix objectives addressed by this unit are as follows:

- By the end of the 8th grade, students will be able to match 5 or more specific jobs to 12 of the 15 occupational clusters.
- By the end of the 8th grade, students will be able to describe 5 jobs within at least two occupational clusters and identify the clusters to which their aptitudes, interests, and abilities best relate.
- By the end of the 8th grade, students will be able to identify 3 or more positive qualities of 10 members of the class.
- By the end of the 8th grade, students will be able to identify at least 5 sources that they could use to find job openings.
- By the end of the 8th grade, students will be able to list the steps taken in getting a job.

Career Study Unit - Ninth Grade

The overall purpose of this unit is to make education more relevant to the realities of the world of work. More specifically, the unit aims to make a connection for students between their studies and their future occupations. This unit was developed by the freshman English team at Ceres high with the aid and direction of the personnel of the career education staff and the district curriculum personnel. It is usually used within the framework of the language arts program.

A team of two teachers and two aides work with each class four times a week for nine weeks. Each class session is 45 minutes long. Instruction is centered around reading and writing activities, listening to guest speakers, and viewing films. Students are also provided with a list of extra activities to be completed on an optional basis for an "A" or "B" grade.

Specific matrix objectives for the Career Study Unit are:

- During the 9th grade, students will be able to list the advantages and disadvantages of three jobs which interest them.
- During the 9th grade, students will demonstrate a functional need for an education by developing a career preparation plan suitable to their aptitudes, interests, and abilities.
- During the 9th grade, students will list three abilities or skills necessary for successful entry into a career of their choice and will list where, in school, they can learn these abilities or skills.

- During the 9th grade, students will be able to demonstrate the ability to utilize the decision making process needed in developing personal career goals.
- During the 9th grade, students will have developed and identified an in-depth exploration study of one job family in an occupational cluster suitable to their abilities and aspirations.
- During the 9th grade, students will be able to successfully complete at least three different types of job application forms.
- During the 9th grade, students will be able to demonstrate acceptable procedures for participating in a job interview.
- During the 9th grade, students will be able to list at least eight sources that they can use to find job openings.

Economics Unit - Eleventh Grade

Economic awareness is an essential part of career education at Ceres. Schools must provide students with economic information because they are constantly bombarded by the media and other sources with material that has economic implications.

The Economics Unit is divided into four sections: capitalism, private ownership forms, progressivism, and labor management. Large group lectures and small group activities are part of each section. A quiz is given on each section and corrected in class.

Capitalism is probably the most difficult part of the unit to teach. The students usually have never encountered the term, but most have a fair idea of concepts such as the profit motive and supply and demand. Discussions are kept very simple and realistic; practical examples, such as the energy crisis, are used. Each class begins with a simulated business (e.g., ice cream parlor, candy store, delicatessen). Students encounter common problems specific to people entering business, and they learn the supply and demand concept.

Private ownership is a study of advantages and disadvantages of certain forms of business to the businessman and the consumer. Discussions concern single proprietorship, partnership, monopolies, corporations, mergers and holding companies. The business game is continued as the students become "robber barons" and use cut-throat tactics to gain control of their individual industry.

Progressivism is concerned with the government response to alleged exploitation by big business. The students become familiar with the work of muckrakers (e.g., the Sherman Act, the Clayton Act, the Federal Trade Commission and the Interstate Commerce Commission) are discussed extensively.

The labor-management section is concerned with the relationship between the worker and the employer. The problems of early unions are discussed with emphasis given to conditions of the workers. A simulation game is used which includes the roles of the union, workers, management and scabs. Contemporary problems such as featherbedding, check-offs, and jurisdictional strikes are explained.

At the end of the labor management section, a game reviewing the entire unit is played. Students discover the areas that need more study and review them before the posttest which concludes the unit.

Specific matrix objectives selected for this unit are as follows:

- During the 11th grade, students will be able to demonstrate their understanding of the selected basic principles of the economic system of our society and the relationship of productive work to the system. (Supply and demand, the profit motive, and private ownership.)
- During the 11th grade, students will demonstrate (in writing) an understanding of selected financial and legal instruments that govern and protect workers and consumers. (Sherman Act, Clayton Act, Interstate Commerce Commission, Federal Trade Commission.)

Self and Career Choice Unit - Twelfth Grade

The importance of self-esteem, an element of self awareness, is the focus of this twelfth grade unit. The Self and Career Choice Unit is divided into four parts:

1. What does the student like about himself/herself?
2. What positive characteristics do others see in the student?
3. What do vocational tests tell the student about a career choice?
4. How might the positive characteristics affect each student's career potential?

Part one is implemented through the use of three tasks. Students are asked to write their own epitaph, asked why they should be allowed to survive if a world catastrophe were to occur, and asked to take the Self-Esteem Inventory.

Class discussion of part one is a natural lead into part two where students write one positive characteristic for each of their classmates, ask one or more teachers to evaluate and give them one positive characteristic, and ask one or more parents to evaluate them and give one positive characteristic.

Students then take the Occupational Exploration Kit (OEK). In the final part, students are instructed to use the characteristics presented by parents, teachers, and peers to narrow down the data given by the OEK test into more specific jobs that not only fit their talent, but also fit their needs of being appreciated and valued as a person. Each of the job selections is presented to the class as a whole and others are invited to comment on the practicality of each career in light of the student making the choice.

Specific matrix objectives selected for this unit include the following:

- During the 12th grade, students will be able to analyze at least five positive self-characteristics which will help them succeed in a career.

- During the 12th grade, students will select two occupations compatible with their characteristics that can contribute to their family and society, and identify ways in which they can achieve dignity and self worth.
- During the 12th grade, students will identify their attitudes toward work and describe these attitudes to the teacher's satisfaction.

PROJECT MATCH

Ontario-Montclair School District

Ontario, California

Octave V. Baker

American Institutes for Research

Norman Steinaker

Ontario-Montclair School District

30 June 1978

The information reported herein was obtained pursuant to contract no. 300-77-0303 with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to document information according to their observation and professional judgment. Consequently, information, points of view, or opinions stated do not necessarily represent official Office of Education position or policy.

FOREWORD

This activity description was prepared as part of a study conducted by the American Institutes for Research (AIR) under contract No. 300-77-0303 to the U.S. Office of Education. The purposes of the study were to identify evaluated, exemplary career education activities; to recommend identified activities to the Joint Dissemination Review Panel (JDRP) of the Education Division, Department of Health, Education, and Welfare; to prepare descriptions of identified activities; and to develop a handbook with six models for evaluating career education activities.

The criteria established for screening activities in this study intentionally limited choices to those whose evaluation reports presented evidence of effectiveness. Close attention was given to the soundness of evidence in evaluation reports. A minimum requirement for this evidence of effectiveness was that some comparison standard be provided so that gains made by the students participating in the activity could be attributed to the impact of the activity. After confidence in the evidence of effectiveness was established, further criteria were applied. These criteria included consistent relationships between a well-planned assessment of needs, a statement of desired student outcomes, the selection of instruments, and the procedures used in data collection, management, and analysis.

This document describes one of ten projects that was selected from among 250 submitted. It presents one locale's way of successfully implementing a career education activity, the results of which are educationally significant. Although the description reflects an activity developed in response to local needs, other school districts with similar needs may wish to adapt parts or all of it according to their own circumstances and philosophy.

We are especially grateful to the staff of Project MATCH and to the many school staff members who generously gave their time to answer questions from AIR site visitors. They extended a special kind of hospitality and spared no amount of effort to provide the information necessary to prepare this description. They made it possible for the site visitors to see the program in action, as well as to understand the philosophy and strategies that underlie its operations.

Project MATCH materials are judged to be free of bias with regard to race, sex, age, income levels, and type of occupation.

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PROJECT OVERVIEW

- TITLE & LOCATION: Project MATCH (Matching Attitudes and Talents to
Career Horizons)
Ontario-Montclair School District
Box 313
Ontario, California 91761
- TYPE: Infusion
- PROJECT DIRECTOR: Norman Steinaker
Ph.: (714) 983-7412
- SETTING: The Ontario-Montclair school district is located 40 miles east of Los Angeles in San Bernardino county. The district serves a heterogeneous community of whites, latinos, and blacks. The population is predominantly working class, with 20% of the workers holding professional or managerial positions.
- STAFF: Project MATCH operates within the framework of existing school staffing arrangements. Because it is curriculum-oriented, it does not require changes in regular staff assignments, duties, or procedures. To adopt the project, most small school districts could use their existing staff with perhaps the addition of a part-time clerical person to duplicate materials. Larger districts, however, may need to employ a part-time director to coordinate the project activities.
- GOALS: Project MATCH is designed to infuse a career education component into the regular curriculum of a K-8 school district program. Goals have been formulated in ten areas of career education, including career awareness, self-awareness, consumer competencies, and career planning and decision making.
- EVALUATION DESIGN: The evaluation design utilized pre- and posttests on intact treatment and control classes. These classes were randomly selected, one class per grade, from schools assigned to the treatment and control conditions. Student attainment of project objectives was assessed by four project-developed career education tests with established reliability and validity.
- MATERIALS: The project has developed behavioral objectives in ten areas of career education; a grade-by-grade guide to achieving these objectives; a series of curriculum infusion units (110) that integrate career education concepts into most curriculum areas; special individual programs; a simulation program in civics; and career education evaluation instruments. The project has also developed an inservice training model to introduce teachers to the project.
- COSTS: Because Project MATCH is curriculum-oriented, it does not require the addition of new staff. Accordingly, the project can be implemented with relatively little cost. The major costs are for materials, inservice training, consultation, and possibly the salary of a part-time coordinator or liaison person.

PROJECT DESCRIPTION

PROGRAM DEVELOPMENT

Project MATCH was developed in response to a set of needs expressed by parents, teachers, and administrators in the Ontario-Montclair School District. For some time before the project was established, these groups indicated that the district curriculum, particularly at the junior high level, needed revision and extension. They shared a general concern that the curriculum was somewhat narrow, antiquated, and irrelevant to the real-life aspirations of students. In particular, these groups were concerned that the existing curriculum was not adequately preparing students to enter the job market. Furthermore, they were concerned about the students' generally low scores on standardized tests of basic skills, and they suggested that the situation could be improved if students understood why basic skills are needed for success in the job market.

In response to these concerns voiced by teachers, parents, and administrators, the district initiated an opinion survey of selected samples of students, parents, teachers, and community members. The following instruments¹ were used in the survey:

- A Career Education Survey (an agree-disagree survey keyed to 24 statements regarding Career Education) given to principals and staffs of target schools and to the district advisory committee.
- A Career Information Survey (adapted from a Santa Barbara High School, Santa Barbara, California, District Career Information Survey) for students in grades K, 1, and 2.
- An Occupational Information Survey (adapted from the Santa Barbara High School District Career Information Survey) for grades 3, 4, 5, and 6.
- A Career Education Survey for grades 7 and 8.

The following are the key survey results that led to the establishment of Project MATCH.

- Students lacked an understanding of career education concepts and indicated that they learned very little from school regarding available careers and jobs.
- Students generally felt that the guidance and counseling services available were inadequate.

¹ Copies of these instruments or information about the opinion survey are available upon request from Project MATCH.

- Most eighth graders indicated that they intended to enter the labor force as soon as they graduated from high school, if not earlier.
- A majority of eighth graders indicated that they already had careers in mind. (This finding suggested that students were making career choices without adequate information, since there was no organized career education program in the district at this time.)
- Teachers and administrators indicated that the teaching of career education was at best fragmented and uncoordinated.

These findings confirmed the need for an expanded K-8 career education program in the district. A career education planning group was formed that included representatives of the administrators, teachers, parents, and students of the district. After introductory workshops to introduce the concept of career education to the teachers, more intensive workshops were held by the curriculum development staff of the school district. The proposal for the project was written by the full-time curriculum development specialist of the district in collaboration with teachers, administrators, and representatives of community groups. Essential to the success of the project was the full participation of teachers in every aspect of its planning and development. Suggested steps for setting up a planning group and adopting the project are presented later.

Context and Intended Users

The Ontario-Montclair school district is located 40 miles east of Los Angeles in the west end of San Bernardino County. The economy of the area was originally based on citrus fruits and vineyards. The economic importance of agriculture, however, greatly diminished after World War II, although Sun Kist, Inc., maintains its orange processing plant within the school district. Major employers within the school district and the surrounding areas now include General Electric, Lockheed Air Service, and Kaiser Steel. A number of smaller industries are also located in the area. Even with this variety of industrial establishments, however, the area has an unemployment rate of nearly 10%, which is higher than that of many surrounding areas.

The district encompasses a wide range of socioeconomic and ethnic groups. The population is approximately 60% white, 34% Spanish surnamed, 5% black, and 1% other ethnic groups. The population is predominantly working class, with most family heads employed in unskilled or semi-skilled positions. The schools chosen to participate in Project MATCH reflect the diverse social and ethnic composition of the school district.

Data collected and analyzed concerning the effectiveness of the project with this heterogeneous population indicate that it is appropriate for a broad spectrum of students. Further, support for this contention is offered by an analysis, conducted later, of the project's effects on various subgroups. Groups were defined by sex, intelligence, ethnic group (Spanish surnamed versus non-Spanish surnamed) and socioeconomic status. The results of the analysis revealed no significant differences for most groups in their attainment of the project's objectives.

Goals and Objectives

Ten career education areas were identified and terminal performance objectives (TPOs) were written corresponding to each of the areas. For each area, a "general terminal performance objective" (GTPO) was developed that summarized the TPOs within it. The ten career education areas and their associated GTPOs are shown below.

<u>Career Education Area</u>	<u>General Terminal Performance Objective</u>
1. Career Awareness	Students will be exposed to the various career clusters and will realistically select those clusters related to their individual aptitudes, interests, and abilities.
2. Self-Awareness	Students will develop positive attitudes toward self and others, attach worth and value to work, and find meaning and direction to life through school experience.
3. Attitude Development	Students will develop positive attitudes toward work by understanding the contribution work makes to humanity.
4. Educational Awareness	Students will recognize their educational experiences as an integral part of their total career preparation and development.
5. Economic Awareness	Students will be aware of the basic structure of our economic system and the freedom experienced therein, through recognition of economic options available to them.
6. Consumer Competencies	Students will, through various experiences, such as role playing, guidance of teachers, and use of community resources, become aware of and competent in their role as consumers.

- | | |
|--|---|
| 7. Career Orientation | Students will use career information that will reveal job options available to them in the world of work. |
| 8. Career exploration | Students will participate in a program of career exploration that will contribute to personal and career satisfaction. |
| 9. Career Planning and Decision Making | Students will participate in their career development process and increase their knowledge of themselves, the world of work, and the society that affects them. |
| 10. Civic responsibility | Students will realize their roles (rights, responsibilities, and privileges) as citizens in a democratic society. |

MATERIALS AND ACTIVITIES

Project MATCH has developed a diverse educational program for introducing and infusing career education concepts into the regular curriculum. The program consists of the following major elements.

Terminal Performance Objectives

A scope and sequence document has been developed for the entire program; it includes an "introduction," "reinforcement," and "mastery schedule" as well as a "mastery level definition." Altogether 63 objectives are presented in the ten areas of career education. The document (18 pages) is easy to use with objectives clearly stated. Any district can easily adapt this model and develop its own objectives for a K-8 career education program. A sample of the terminal performance objectives can be found in Appendix A.

Career Education Skill Continuum

An extensive grade-by-grade guide has been developed for achieving the objectives contained in the terminal performance objectives. It consists of ten volumes, one for each category of career education objective. The purpose of the continuum is to help teachers become aware of the appropriate sequence of career education objectives and to provide a series of graded activity sequences designed to achieve these objectives. For each activity a content base is suggested, allowing teachers to infuse career education concepts into the regular curriculum. All content areas are represented in the skill continuum, including physical education. A list of project-developed and commercial resource materials is also included for each series of activities in the skill continuum. Additionally, the

continuum includes a section on evaluation that suggests measures and methods for determining student achievement. Each volume contains an appendix that includes bulletin board suggestions, a glossary of terms, additional games and activities, and other teacher support materials -- all keyed to specific grade levels.

A teacher can flexibly use the skill continuum by selecting resource and evaluation materials appropriate for the students' achievement level and sequencing a series of activities designed to achieve the objective. The guide can be used with individual students, small groups, or the total class. Essentially, the continuum is a planning tool that allows the teacher to infuse career education concepts into the curriculum without disrupting existing curriculum sequences.

The comprehensive nature of the skill continuum allows it to be used as a free-standing competency-based career education program. Or it can be used, as in Project MATCH, to supplement other components of a program. In either case, the continuum represents a rich resource with the possibilities of multiple uses in a career education program. See Appendix B for a sample page from the career education skill continuum.

Evaluation Instruments

Four valid and reliable evaluation instruments have been developed to assess student attainment of career education objectives. These instruments are "Career Awareness" K-1, "Career Awareness" 2-3, "Career Concepts" 4-6, and "Personal Career Readiness" 7-8. Details regarding the development and validation of these instruments are presented later in the evidence of effectiveness section of this report.

Infusion Units

Teachers have developed a series of units (110) that integrate career education objectives and concepts with a wide range of content areas at every grade level from K-8. All units are accompanied by pre- and posttests for the assessment of student progress. By using these units, teachers can ensure that career education becomes an integral part of the curriculum rather than another element that is added on. Each content-based unit is designed to achieve several career education objectives. There are units in a wide variety of curriculum areas, as shown in the display of sample unit titles on the next page.

Sample Unit Titles and Curriculum Areas

<u>Sample Unit Titles</u>	<u>Curriculum Areas</u>
News Broadcasting	Language Arts
Economic Production - Manufacturing	Social Studies
How Do Families Help One Another	Health
Art: Sculpture and Architecture	Art
The World of Music	Music
Research Skills	Reading
Astronomy - Our Moon	Science
Checks and Checking Accounts	Math
Goods and Services	Practical Arts

Although the units can be used alone, Project MATCH staff recommend that they be used in conjunction with other elements of the program such as the skill continuum. For example, teachers can use the results of student performance on unit pre- and posttests to identify areas in which the students need additional work. The skill continuum can then provide supplemental resources and activities in the area in question. See Appendix C for a sample page from an original infusion unit.

Infusion units come in two formats. The first format was used with the original 80 units which included: concepts, performance objectives, activities, resources, and evaluation. The second format was used with the Experiential Taxonomy Career Education Units. These units are a unique professional package that can greatly enhance the planning and implementation of the career education curriculum. The units contain student objectives with activities, learner behaviors, learning principles, and teaching strategies, all keyed to the taxonomy. The units are further keyed taxonomically to three levels: problem solving, critical thinking, and creativity. Suggested resources are included as well as strategies for the implementation and for the assessment of student growth. Teacher reaction to the units has been excellent. The units have been shown to enhance student achievement of career education goals. The results of a recently completed evaluation study showed that most students in classes in which the units were used dramatically out-scored students in classes using the infusion units that are not keyed to the taxonomy. A sample page from a unit is shown in Appendix D.

The Experiential Taxonomy

The taxonomy¹ is composed of five hierarchical steps carefully sequencing the learning process for teachers and students. The five steps are defined below.

1. Exposure: Consciousness of an experience. This involves two kinds of exposure and a readiness for further experience.
2. Participation: The decision to become physically a part of an experience. There are two levels of interaction within this category.
3. Identification: As the participation modifies the experience, the process of identification with the experience begins. There are four levels of activity within this category.
4. Internalization: The participant moves from identification to internalization when the experience begins to affect the life-style of the participant. There are two levels in this category.
5. Dissemination: The experience moves beyond internalization to communicating the experience to others. It goes beyond positive sharing which began at level 3 and involves two levels of activity.

Because the experiential taxonomy provides a synthesis of the cognitive, affective, and psychomotor elements of the learning process, it is a valuable aid for realistically planning, implementing, and evaluating educational objectives and the related teaching-learning act. The taxonomy thus provides a means of dealing with the totality of classroom activities. It makes it easier for a teacher to plan objectives appropriate to the needs of an individual learner, or groups of learners, because the teacher can deal with total individual needs in a succinct and logical manner. Additionally, it helps teachers to recognize and understand the status of individual students in terms of a particular experience, thus enhancing the teacher's ability to develop new strategies and activities designed to help each individual through further levels of experience. Further, it can be of vital importance in teacher self-evaluation and professional development. When the teacher learns to use the taxonomy for self-evaluation, it becomes a very effective tool in professional growth.

An Experiential Taxonomy Teaching Strategies Coding System has been developed from the basic taxonomy. This coding system, which is totally and completely unique, can be used by teachers for self-evaluation and professional development.

¹ The theoretical base for the taxonomy is discussed in the following source: Steinaker, N., & Bell, M. R. The experiential taxonomy: A new approach to teaching and learning. Ontario, CA: Project MATCH, 1977.

Teachers can learn this system in a one-day workshop and then, with minimal monitoring, can actually code their own lessons. Project teachers have done this and have reacted positively to it. To cite one teacher, "The coding system has really helped me understand what is happening in my classroom. I see it as a means of helping me in my planning and teaching."

Career Education Games/Career Center Activities

Project MATCH has developed a number of career education games and career center activities to be used as supplemental activities in grades K-8. These games and activities are designed for use with small groups of students when their classmates are involved with other activities. For example, the games may be used to reward students who complete their math or other assignments. Each game or set of activities is accompanied by simple and straightforward instructions and suggestions for use. Responses from students and teachers have been overwhelmingly favorable.

Special Programs

Special programs are courses of study or special curricula which include career education concepts as well as subject area materials. There are five major special programs. Samples of these are not included because of the length of the programs, but each is described below.

Simutown (Grades 5-8). This highly successful and well-accepted program has been contracted for publication by Occupational Awareness, Inc., of Los Alamitos, California. It is a simulation program in economics, consumerism, civic operation, and citizen responsibility. Its major simulation activities are centered in banking, business operation, and city government. It is strong in the content areas of mathematics, language arts, and social studies. It contains a program pre-posttest, suggested vocabulary tests, and other evaluation instruments. The program has been successfully used in grades 5 through 8 and is popular with teachers, students, and the community. This program can be utilized as it is or it can be adapted to meet the special needs of individual students or teachers. Suggestions for adaptation are contained in the instructions for the program.

Elements of the program are usually introduced in the fourth or fifth grade. The banking and election units, in particular, are popular at these grades. In sixth grade, the complete program may be used daily for a 10-week period. In

Project MATCH, all students experience the complete program by the end of eighth grade. However, the program can also be used with high school students with special needs.

Student responses to the program include the following comments: "I never knew before that it takes a lot of cooperation to get a city run." "I learned that mayors can't do everything that they want to; they have to use their council." These comments are typical of remarks that the students make as they learn how the real world functions through this program. It is particularly strong in helping students learn their roles as consumers and producers.

Citizen Apprentice Program (Grades 7-8). The Citizen Apprentice Program provides junior high students with modified on-the-job work experience and on-site observation and evaluation of business practices. In Project MATCH the program is offered as a social studies elective in a departmentalized junior high school. Arrangements are made with local businesses in a shopping area near the school to have the students assigned to them for 10 class periods, during which time the student actually works alongside of, and observes, his/her business partner as he/she goes about performing the duties of a job. District buses provide transportation for students to their assigned stores, all located in a small local shopping center. This on-site observation is preceded by three weeks of intensive classroom preparation that involves a detailed study of shopping centers in general, and job application and interviewing procedures. Before each visit to their assigned businesses, students are made aware of and are responsible for obtaining specific, pertinent facts regarding the operation of the businesses.

This on-the-job experience leads to mutual understanding between students and business people. The adult business people tend to develop a more accurate idea of what junior high school students are like. Similarly, the students are able to understand and appreciate the business people and their concerns. Thus, school-community relations are enhanced. Students are also better able to understand and evaluate the relations between job values, job satisfactions, and desired life-styles. Additionally, the students are able to understand why competency in basic skills is necessary to hold down even the simplest job. This program provides a framework for developing a district program, and it can be easily adapted to meet the unique needs of many school districts.

Schools wishing to implement the program should take into account a number of considerations. First, businesses participating in the program must be care-

fully selected if students are to benefit fully. Business sites should also be relatively close to the school to minimize transportation costs and commuting time. As already noted, the number of participating students must be kept in reasonable bounds to ensure adequate supervision. In spite of these caveats, the program can be easily adapted to the circumstances of a wide variety of school districts. For example, in rural districts where business sites are not accessible, the program can use business officials as guest speakers to the classrooms of the district. And field trips can be used to familiarize the students with a variety of government and commercial institutions.

Individualized Reading Center Program (Grades 7-8). This is a career education reading contract. Students proceed through a series of individual contracts that utilize career materials designed to increase self-awareness, develop career awareness, explore job clusters and focus on specific job study. Commercially prepared materials are available in a resource area in the reading center of the target junior high school. These materials have been coded by reading levels ranging from the fourth to the twelfth grade levels. As students attain improved reading skills in vocabulary and comprehension, as measured by the Comprehensive Test of Basic Skills administered three times a year and more frequent teacher evaluation, they are moved to career materials of greater reading difficulty. Career filmstrips, tapes, kits, and hardback texts are used to teach listening, vocabulary, note-taking, outlining, summarizing, and reading for understanding. Students are given the opportunity to practice decision making since they are allowed to choose specific activities (according to their abilities) within the four career education aspects of self-awareness, career awareness, job families, and particular job studies.

Students are required to complete at least two career education reading contracts at each grade level. By the end of the eighth grade, all students have usually completed a minimum of four reading contracts.

The program can easily be adapted using the present contract format. Once student needs are identified, contracts can be developed based on material available in the school library. The program includes a guide to selecting appropriate reading materials according to the reading level of students and career education objectives to be mastered. The program can also be adapted for use in the regular classroom rather than in a special reading center. Additionally, the program can be modified for students at the elementary level.

English Course of Study (Grades 7-8). This program infuses career education concepts into English instruction. It is designed for student achievement of

both career education and English objectives. Study skills, interviewing, and creative writing are emphasized. Students are encouraged to do career research in the real world context in which they will soon be participants. Teacher and student response to the program has been excellent. The chart below shows the materials and activities included in the English Course of Study.

<u>English Course of Study Materials and Activities</u>	
<u>Materials</u>	<u>Activities</u>
Interest Inventory	Using the Yellow Pages
College Worksheet	Selecting a Job
A Sample Business Letter	Writing a Sample Business Letter
Personality Quotient Rating Chart	Interviewing
Employment Self-Quiz	Asking for References
Career Survey	Completing an Employment Application Form
What Is the Job	Understanding Salary Deductions
Vocabulary Exercises	Understanding Fringe Benefits
Occupational Groups	Understanding Social Security
Job Exploration	Establishing Credit
Crossword of Life	Applying for a Social Security Number
Personal Fact Sheet	Ordering from a Catalog
Credit Card Application	Researching to Become an Expert
Sample Career Essay	Writing a Career Research Report
Driver's License Application	Writing an Autobiography
	Choosing a College
	Applying for a Driver's License

Depending on their ability, students can begin the program in seventh grade. By the end of the eighth grade, all Project MATCH students have usually participated in the program.

Individualized Learning Activity Packages on Career Decision Making (Grades 7-8). Another of the six special programs is a series of six learning activity packages (LAPs): "Getting Started," "Ten Years From Now," "Careers: The Big Picture," "Career Closeup: Maybe I'll Become...", "Something of Value? Maybe I'll Become...", and "On My Way." The focus of the LAPs is career decision making

for students. Each LAP is a self-contained career-oriented individualized learning sequence. The Personal Career Readiness Test is used as a pre- and posttest for the LAPs.

The series of LAPs guide students through a complete career decision-making process. Students engage in self-appraisal, interest identification, career awareness, and career planning. They are also strong in vocabulary building, practical math, and study skills. Students are expected to complete all six LAPs in a school calendar year. By the end of the sixth grade, LAP students are able to develop a career plan with specific, well-defined goals.

Students can use the LAPs with supervision; in this case, a librarian, aide, or counselor is assigned to collect the students' completed material and retain the LAP summary. Or LAPs can be used in teacher-directed, individualized group activities.

The LAPs are an excellent supplement to content areas such as social studies, English, reading, and math. In Project MATCH they have even been used by counselors in their interactions with students. And some LAPs are designed to be done at home with family members. Schools using the English Course of Study may want to utilize the LAPs selectively since there may be some overlap between the two programs.

Summary Comments

Used in the proper sequence, the elements of Project MATCH discussed above represent a coherent career education program for grades K-8. Schools wishing to adopt the program are encouraged to adapt the materials and procedures to fit their unique needs. The terminal performance objectives and the skill continuum should be viewed as the basic building blocks of the program. The infusion units and the special programs are also key elements. At the junior high level, students become increasingly involved in the special programs. Hence, the infusion units are used more selectively at this level. However, if no special programs are used, Project MATCH staff recommend that most of the infusion units be used in conjunction with the skill continuum.

To achieve the maximum benefits from the special programs, Project MATCH recommends that they be used in the following sequence: (1) Simutown, (2) Citizen Apprentice Program, (3) LAPs and/or English Course of Study. This sequence is appropriate for junior high school with grades 6-8 or grades 7-9. The sequence is logical in that students are first exposed to the world of work through a simulated experience. Then they participate in a modified on-the-job work ex-

perience. Finally, students build on these experiences by exercising career decision-making skills and doing research on careers of interest.

STAFFING AND MANAGEMENT

Project MATCH operates within the framework of existing school staffing arrangements. Because it is curriculum-oriented, it does not require changes in regular staff assignments, duties, or procedures. The project can easily be implemented in schools with a variety of staffing patterns including departmentalized staffing, multi-graded classrooms, and various kinds of differentiated staffing patterns. In most small to moderate sized school districts the management responsibilities of coordinating the project and maintaining liaison with Project MATCH can be assumed by an existing administrator, teacher, or curriculum consultant. Large districts, however, may need to hire a part-time person to coordinate the project activities. A part-time clerical person may also need to be hired to assist the project coordinator. There is no need for an evaluator to be assigned exclusively to the project because the evaluation staff of an adopting school district should be able to provide the required assistance. The management strategies required by the project are implicit in the role of the project coordinator and in the description of the implementation process, which will be discussed later in this report. The management responsibilities and qualifications of the project coordinator are shown in the chart below.

<u>Project Coordinator</u>	
<u>Management Responsibilities</u>	<u>Qualifications</u>
Arrange and organize the inservice training in conjunction with Project MATCH	Administrative experience and credentials
Act as liaison with Project MATCH	Interest and skill in curriculum development and career education
Monitor the implementation of the project	Ability to establish and maintain good interpersonal relations with teachers
Prepare evaluation materials in cooperation with project MATCH	Familiarity with the basics of educational program evaluation

Staff Development

A strong inservice training program has been essential to the success of Project MATCH. Indeed, the success of the original program has been attributed to the fact that it was developed by the teachers of the district where it was implemented. Because of this fact the teachers were committed to using the program, and they felt that it belonged to them. Staff development has a number of components.

Summer Writing Workshops. In summer workshops, participants developed the major program components, wrote the terminal performance objectives, worked on curriculum infusion units, and, in later sessions, they edited and refined the materials. About 15 teachers participated each summer. During the third summer workshop, the experiential taxonomy and the experiential taxonomy teaching strategies coding system were introduced and used. These workshops have been very successful in terms of program development and implementation.

Visits. These include visits to other school districts with career education programs and to classrooms within the Ontario-Montclair District where career education is in progress. The first type of visit was used primarily during the first project year, the second during the project years since then.

Career Education-Community Seminars. These have been extremely well received and effective staff development programs. They deal with a theme or problem in career education and are set up to include teachers, administrators, county and state consultants, school board members, students, and community representatives. They provide a format for a lively interchange of ideas and points of view. Eight have been held and two more are planned. Most recently, they dealt with the experiential taxonomy and its added dimension to the program. Past seminars have dealt with simulation, utilizing the community, economic skills, consumer competencies, and curriculum planning. One seminar served as a program review.

Presentation in Staff Meetings. The project director and teachers have made a number of presentations at target school staff meetings reviewing curriculum, infusion strategies, special programs, and other program elements. These presentations are designed both to inform teachers about the program and encourage its wider use and have proved helpful.

Small Group Inservice Training Days. Teachers frequently have been brought together for special inservice days dealing with particular project or teacher

needs. These sessions have focused on curriculum writing, game development, theory discussion (experiential taxonomy teaching strategies coding system, for example), program review, and grade level meetings.

Use of Consultants. Consultants from various fields have been invited to help project teachers. These consultants include teaching practitioners, school administrators, college instructors, and career education consultants from the county schools office and from the State Department of Education.

Summary. The inservice workshops and their instructional methodology outlined above have led to an important change in teacher functioning and thinking. The infusion approach to career education has led teachers to dramatically change their orientation to the teaching process. For example, one first grade teacher recently remarked, "I teach career education naturally now. I don't have to have a special unit as a guide. We talk about jobs and careers when they come up naturally in the program." Similar comments have been made by a number of teachers in the project. The project's definition of career education as the "pragmatic relationship between the real world aspirations of students and what actually goes on in the classroom" is the basis for this kind of change in the teachers. Teachers who have been exposed to the program are able to make career education either an overt or covert aspect of the curriculum.

A carefully planned and conducted inservice training program is essential for the successful adoption of Project MATCH. Therefore, adopting schools should work closely with the staff of Project MATCH in developing and conducting inservice training for their staffs. The inservice training for Simutown, for example, requires one day. Three days of training are needed for the adoption of all program elements. If districts wish to train teachers in the use of the experiential taxonomy teaching strategies coding system, an additional day of training is required. Although it is recommended that someone from Project MATCH be involved in planning the training, the actual training can be conducted by the project coordinator of the adopting project or by an appropriate member of the district educational staff.

PROGRAM IMPLEMENTATION

Project MATCH has developed a diverse career education program with the purpose of infusing career education concepts into the regular curriculum of a K-8 school district. The program can be adopted either in part or as a whole by a wide variety of school districts. Most school districts, while adopting parts

of the program in toto, will probably want to adapt most aspects of the program to fit the unique characteristics of their district. In either case implementation is relatively simple, although requiring a sequential planning process. In general, implementation of the program should include the following tasks.

Select a Planning Group

The planning group should represent staff, administration, and community. Students should also be involved where appropriate. The group should be representative of the ethnic and social groups of the community. Male and female representation should also be approximately equal. Responsibilities of the planning group should be specified and should include some or all of the following:

- establish the extent of need for the program
- review project materials
- select the program, and/or portions of the program, for possible implementation (augment the group with staff members at this time)
- monitor the implemented program previewing evaluation procedures, and
- approve the evaluation report.

The group should plan to remain intact throughout the project and should function as a continuing advisory group when the project is implemented.

Assess District Needs in Career Education

A crucial task in developing a career education program, or any educational program, for that matter, is the identification of specific local needs that may be unique to the community or the school district. This task is a function of the planning group with input from teachers, administrators, consultants, curriculum specialists, parents, and the community. Data should be collected regarding school district objectives, student progress toward meeting these objectives, test scores, and other pertinent areas. Finally, a needs statement should be developed that integrates the findings of the planning group.

Review Project Materials

In this stage, Project MATCH and its various materials should be examined for their suitability to the circumstances of the adopting schools and communities. It is important, for example, to determine whether or not the goals and objectives

of the project are consistent with the needs that have been identified by the planning group. Further, the feasibility of adopting the Project MATCH approach should be determined in light of the organization and function of the curriculum in the adopting schools. Some general questions to be answered with regard to adopting the project include the following: Is the staff amenable to change and to new programs? Do district objectives and needs coincide with the materials and expected outcomes of Project MATCH? For what populations of students is the program planned? Is there community and staff awareness of the need for career education?

A series of descriptive materials is available free of charge from Project MATCH to help school districts decide whether or not to adopt the program. Persons interested in learning more about the program are also encouraged to visit Project MATCH.

Implement the Project

Project MATCH, with its abundance of materials, can be modified as needed to fit the specific needs of a wide variety of school districts. However, Project MATCH staff recommend that districts adopt the full program. The full program includes the following elements:

- three infusion units per grade level, K through 8
- skill continuum at each grade level, K through 8
- games and individualized activities (Career Center grades 2 through 8)
- At least one special program, grades 6 through 8
- Project MATCH-developed evaluation materials.

These materials can be used as prepared by Project MATCH or they can be adapted to meet the specific needs of an adopting school district. Any adapting of materials should be done cooperatively with Project MATCH. Project MATCH personnel are available to provide technical assistance and to work with adopting districts under appropriate arrangements.

Any school district may use selected project materials for specific career education needs. Selected units or special programs can be used at any grade level to meet career education needs and goals. The skill continuum itself can be a free-standing competency-based career education program used without reference to other Project MATCH materials. However, adaption or adoption of selected materials may not result in student gains similar to those observed in

Project MATCH. Adopting schools should avoid the use of Project MATCH materials as a separate career education course of study. Its basic function is that of an infused curriculum project.

It is important to have staff support for Project MATCH. From the inception of planning, staff members should play a major role in the decision to adopt Project MATCH, in reviewing materials, and in awareness-level activities. Without staff support, the program's chances of achieving the expected results would indeed be limited. Wherever possible, staff members should be involved in any on-site visitation to Project MATCH. When the project has been implemented, staff members should participate in monitoring the activities and in collecting process evaluation data. In addition, they should be aware of and assist in the outcome evaluation procedures.

An important but seemingly insignificant issue in implementation has to do with the location of the career education library containing the career education materials. The original developers of Project MATCH believed that the center should be located in a central location, preferably in the central administration building. Such a strategic location not only makes the center's materials accessible to teachers who have to use the central administration building for a variety of purposes, but the location also is symbolic in that it offers physical evidence that the program is central to the district operations and that it is a well-integrated part of the district.

For potential adopters of the program, sample packets are available free of charge describing the major components of the project and how to adapt them to meet the unique needs of school districts. In addition, the following are available for districts wishing to adopt the project:

<u>Handbooks of Materials, Techniques and Procedures</u>		
<u>Title</u>	<u>Description</u>	<u>Cost</u>
Twelve Steps to Experiential Curriculum Development	Gives 12 steps to curriculum development in a consistent and realistic way.	\$2.25
Five Steps to a Career Education Program	Briefly reviews the methods and steps a school or school district can do to plan, implement, and evaluate a career education program.	\$2.25

COSTS

The costs associated with adopting the project are presented in the chart below. Note that the figures do not include developmental costs such as the salary for the full-time project director.

<u>Level of Funding</u>		
	INSTALLATION (Non-recurring Costs)	SUBSEQUENT YEARS (Recurring Costs)
* Personnel (salary for part-time clerical)	\$4,000	\$4,000
Personnel Training (for 2 or 3 days of inservice training)	375	125**
Facilities	0	0
Equipment and Materials (for one set of project materials)	400	0
Consumables (for replacement of tests and other instructional materials)	0	100
Other Costs - Specify:		
Technical Assistance (at least 1 day of technical assistance is recommended during the initial year of adoption)	125	0
	<u>\$4,900</u>	<u>\$4,225</u>
* A part-time clerical staff person is usually not needed for small-to-moderate sized adopting districts.		
** For one day of inservice training		

EVIDENCE OF EFFECTIVENESS

Evidence that the Effects Are Attributable to the Intervention

The evaluation was conducted by the evaluation staff of the Ontario-Montclair School District, with some technical assistance provided by consultants from the California State Department of Education. The data reported here were obtained during the 1976-77 school year. The evaluation design utilized pre- and post-tests on career education classes and non-career education classes. These classes were randomly selected, one class per grade, from schools assigned to the experimental and comparison conditions. The career education (experimental) and

non-career education (comparison) groups were each composed of one junior high and two elementary schools. The career education schools were chosen because their teachers and administrators expressed interest in the project and because they were receiving no special funding (e.g., ESEA Title I) that may have made their students different from the non-career education students. The schools not receiving career education were chosen on the basis of their similarity to the treatment schools along such educationally relevant dimensions as socio-economic status, ethnic composition, and student scores on the Cooperative Primary Test and the Comprehensive Test of Basic Skills.

Within each career education and non-career education school, participating classes were selected by lottery. There were no significant differences between the pretest scores of career education and non-career education classes on the project-developed career education instruments. An analysis of student scores on the previously mentioned standardized tests also confirmed the equivalence of the two groups. Therefore, the two groups met the conditions for a valid evaluation of the impact of Project MATCH programs.

Interpretability of Measures

Student attainment of project objectives was assessed by four project-developed career education tests administered in October and in March as pre- and posttests. Each test was designed for use with two grade levels. The tests contained multiple-choice items that reflected each of the ten previously discussed general areas of career education. The tests were developed over a period of three years by Project MATCH staff in collaboration with teachers in the treatment schools. A sample test item from the Level III test is presented below.

A Sample Test Item From the Level III Test

17. Two kinds of income tax are usually taken out of the worker's pay in California. They are:
- (a) Federal and City
 - (b) Federal and State
 - (c) State and County
 - (d) State and City

A pool of test items was developed from the project objectives. The items were pilot-tested, reviewed by teachers, and modified accordingly. A formal study was conducted to determine whether the tests were reliable and whether they actually measured the attainment of career education objectives. Test items that were not satisfactory were either discarded or modified. See Appendix E for more details concerning establishment of the validity and the reliability of the tests.

Credibility of Evidence

All testing was conducted at the school sites. Tests were administered to career education and non-career education groups under similar conditions at approximately the same time. In grades K-3, the tests were administered orally by the project director or by members of his staff under his direct supervision. In grades 4-5, teachers read the questions to the students, who used answer sheets for their responses. In grades 6-8, students read the questions and made their responses on answer sheets. The project director personally reviewed testing instructions with all teachers. He also reviewed, monitored, and approved all scoring procedures. The project evaluator was responsible for all data analyses.

Evidence of Impact

Mean posttest differences between career education and non-career education classes were analyzed using the t-test for independent groups. The career education classes consistently out-performed the non-career education classes by a wide margin on the posttests. On all four tests, group differences were highly significant. The analysis was performed only on scores of those students who were present for both the pretest and the posttest.

The table on the next page presents graphic evidence of the project's impact on the treatment classes. It displays the pre-post mean gains of the career education and non-career education groups on the project-developed evaluation instruments.

CONCLUSION

The nature of the evaluation design allows one to be confident that the gains observed in the career education classes are in fact attributable to Project MATCH. The career education and non-career education classes were equivalent along educationally relevant dimensions. In addition, the educational experiences of the two groups were similar, except, of course, for the fact that the career education group was exposed to Project MATCH activities. The use of a comparable non-career education group in the evaluation provides a highly credible estimate of how the treatment group would have performed had it not received the intervention. Thus, the natural growth of students, effects of having taken the pre-test, out-of-school experiences, and other extraneous factors can be ruled out as possible explanations of the observed effects. In addition, the characteristics of the teachers can be ruled out as a plausible explanation of the results because the teachers who participated in the evaluation were randomly chosen from the schools.

The career education instruments used to assess the impact of the intervention are highly credible because of the test development process used that ensured their validity and reliability. Furthermore, the well-supervised data collection and analysis procedures provide additional assurance that the findings are objective.

In general, the evaluation provides convincing evidence that Project MATCH produced educationally significant results. The gains of the career education group were large, exceeding those of the non-career education group by a wide margin. Moreover, the gains are in areas generally accepted as important to career education. Additionally, the project's concepts, practices, and techniques are easily identifiable, have general application, and can be adopted or adapted elsewhere with minimal cost.

Appendix A

Terminal Performance Objectives:

Career Awareness

- 1.0 GTP0 - Students will have been exposed to the various career clusters and will realistically select those clusters related to individual aptitudes, interests, and abilities.

- 1.1 Students will become familiar with the fifteen job clusters.*

Mastery Level Definition (MLD)

Students will identify 10 of the 15 job clusters.

- 1.2 Students will identify specific jobs within career clusters.

MLD

Students will identify five jobs in at least six given job clusters.

- 1.3 Students will relate specific jobs to the three categories of work with (a) people, (b) ideas, and (c) things.

MLD

Students will relate specific jobs to three main categories of work: (a) people, (b) ideas, and (c) things.

- 1.4 Students will identify career clusters prominent in the community.

MLD

Given the job clusters, the students will identify those prominent in our community.

- 1.5 Students will evaluate selected occupations in terms of education needed, tools, setting, and products or services.

I level: 6 R level: 7 M level: 8

Students will evaluate at least three selected occupations in terms of education needed, tools, setting, and products or services.

*The introductory level for each objective is primary, the reinforcement level is continuous, and the mastery level is 8th, unless otherwise stated following the terminal performance objective.

- 1.6 Students will compare the relationship between patterns of living and various careers in the local and world community.

MLD

Students will compare the relationships between patterns of living and at least three selected careers in the local and world community.

- 1.7 Students will identify with workers in various occupations.

MLD

Students will identify with workers in at least two occupations.

Appendix B

Career Education Skill Continuum

This Career Education skill continuum is designed to provide a frame of reference for teachers involved in a Career Education program in grades K-8. Elements included in the continuum are:

- Terminal Performance Objectives in
 - Career Awareness
 - Self Awareness
 - Attitude Development
 - Educational Awareness
 - Economic Awareness
 - Consumer Competencies
 - Career Orientation
 - Career Exploration
 - Career Planning and Decision Making
 - Civic Responsibility
- Graded task sequence to achieve T.P.O.'s in each of the above.
- Content area bases for activities.
- Resources both district-developed and commercial.
- Evaluation references and strategies.

The District perspective sees Career Education as intrinsically linked to existing curricula through infusion into content units and content oriented special programs. Ancillary to this strong curriculum component are staff development, community involvement, and non teacher counseling. It is the purpose of this continuum to help teachers become aware of an appropriate sequence of Career Education objectives and a series of graded task sequences designed to achieve those objectives. Further, the teacher can recognize a content base for the skill activities and be directed to evaluation materials to define achievement and gain.

A teacher can functionally use this continuum by selecting resources and evaluation materials appropriate to the student's achievement level and then sequencing a series of activities designed to achieve the objective noted. The program can have as much flexibility as is necessary. Each child, for example, can be individually contracted or assigned a sequence of activities or a small group or even the total class can experience a series of activities. Basically, this is a planning tool to make Career Education become an intrinsic part of the curriculum naturally and without disrupting existing curriculum sequences.

1.0 CAREER AWARENESS

T.P.O. 1.1 Students will demonstrate understanding of the fifteen U.S.O.E. job clusters

Grade	Suggested Activities	Content Base	Resources	Evaluation
K	1.1.1 Introduce term "job family." 1.1.2 Discuss how jobs depend on each other and these are part of a job family. 1.1.3 Talk about how we depend on many people. 1.1.4 Role play jobs and family roles and talk about how we depend on each other.	Social Studies Social Studies (Language Arts for discussion) Social Studies, Language Arts Language Arts, Social Studies	DISTRICT: Curriculum Units - Zoo, Farm, Circus, Helping Myself and Others COMMERCIAL: Games - "Our Helpers" Text - Our Working World: Families Career Hats, Simplex Playboards. Film - Getting to Know Me Filmstrips - "About Myself," "Families" Trade Books - Many	1.1.1 Pre-post tests for each of the curriculum units. 1.1.2 Career Awareness K-1 program pre-post test. 1.1.3 Discussion response teachers list. 1.1.4 Student function in role playing.
1	1.1.1 Use the term "job cluster" synonymously with "job family." 1.1.2 Discuss how we depend on each other and that some jobs more closely depend on each other, i.e., hospital worker. 1.1.3 Study community helpers and how many of them relate to a job cluster. 1.1.4 Find out how many people work together to help us have balanced meals	Social Studies Social Studies, Language Arts Reading, Social Studies Reading, Health	DISTRICT: Curriculum Units - A Good Lunch, Dinosaurs, How Do Families Help One Another, Small Town-U.S.A., The Food You Eat COMMERCIAL: Games - "Our Helpers," "My Family" Text - Our Working World: Families, Our Working World: Neighbors Kits - Tinker Toys, Career Hats, Simplex Playboards	1.1.1 Unit pre-post test. 1.1.2 Career Awareness, K-1 program pre-post test. 1.1.3 Teacher-made evaluation of content materials. 1.1.4 Discussion response to media and unit sequence - teacher list

Appendix C

Original Infusion Unit Format

Communication

Title

CONCEPTS	PERFORMANCE OBJECTIVES	ACTIVITIES	RESOURCES	EVALUATIONS
1.0 We express moods and communicate attitudes in different ways including non-verbal ways. -179-	1.0 Students will demonstrate awareness of different moods through interpretation of expression.	1.0.1 Discuss nonverbal communication including a person's expression. 1.0.2 Look at various pictures and discuss the moods and attitudes shown. 1.0.3 Show selected attitudes and moods through personal expression.	Pictures of various people in many situations.	1.0.1 Pre-post test. 1.0.2 Evaluation of discussion. 1.0.3 Showing of attitude through expressions.
	1.1 Students will play the game "What's My Bag" through which they will be able to identify persons through nonverbal communication and mood and attitude pictures.	1.1.1 Play the game "What's My Bag" 1.1.1.1 discuss game. 1.1.1.2 have students prepare personal bag. 1.1.1.3 play the game.	Bag with things in it. Shaftel & Shaftel, Role Playing For Social Values	1.1.1 Completed game.
	1.2 Students will identify feelings through non-verbal cues.	1.2.1 Looking at pictures. 1.2.2 Discussing pictures. 1.2.3 Discussing role playing. 1.2.4 Role playing using nonverbal cues. 1.2.5 Identifying feelings expressed through non-verbal cues.		1.2.1 Role playing evaluations. 1.2.2 Identification of feelings through non-verbal cues.

Appendix D
Experiential Taxonomy Teacher Strategies Coding System Format

Taxonomic Level	Teaching Strategy	Descriptor	Teaching Role/Behavior
Exposure	1.1 Incentive Conditioning (goal setting)	Introducing an experience. Goal setting. Establishing stimuli.	Motivation - Presenting and focusing data. Demonstrating, presenting, and interacting with students. Teacher's aide is dominant. Students must be motivated to continue through experience. If only some are motivated, use them as catalysts in the next category for peer interaction and peer teaching.
Sensory	1.2 Data Presentation	Giving information, identifying experience, lecture, use of media.	
Response	1.3 Demonstration	Demonstrate a principle - show how to do. Use of realia/models.	
	1.4 Directed Observation	Focusing on particular or selected stimuli, establishing parameters, telling learners what to look for.	
Readiness	1.5 Data Exploration	Interacting with data or selected stimuli establishing a readiness for further experience. Usually in the interrogative mode. Preparation for participation.	
Participation	2.1 Modeling/Recall	Mental/physical reproduction (imitation) of a given or known example or concept (model). Learner <u>recall</u> based on a known reference.	Catalyst - Working with the data. Teacher role is vital here to continue student learning. Strategies 2.3 and 2.4 are most helpful in fostering peer interaction and peer teaching. Use groups, large or small, to foster interaction. Peer teaching can be incidental, accidental, and planned.
Representation	2.2 Expanding Data Bases	Accumulating appropriate resources, generating data, reading, viewing, listening, discussion. Why questions or evaluate questions bringing added data.	
Modification	2.3 Dramatic Play	Unstructured role playing.	
	2.4 Manipulative and Tactile Activities	Use of material, realia, and media. Hands on activities, how to use materials.	
	2.5 Ordering	Sequencing of data, arranging data, establishing material hierarchy, defining frame of reference.	

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Appendix E
Reliability Study

A formal reliability study was conducted during the spring of 1976 on project students. Pearson r correlation coefficients were calculated to establish the test-retest reliability of the instruments. Biserial r (the correlation of each item with the total test scores) was used to establish the validity of the test. Test items developed in the previous year whose validity index indicated very low correlations were discarded or modified, and, in one case, the length of a test was increased to achieve higher reliability and validity for the instrument. The Pearson r and biserial r (mean) for each test are presented below, along with a number of items comprising each test.

<u>Kindergarten - First Grade Level I (15 items)</u>		
Pearson r Test-retest reliability		.92
Biserial r Item validity index (mean)		.40
<u>Grade Two - Three Level II (41 items)</u>		
Pearson r Test-retest reliability		.87
Biserial r Item validity index (mean)		.31
<u>Grade Four - Six Level III (50 items)</u>		
Pearson r Test-retest reliability		.81
Biserial r Item validity index (mean)		.35
<u>Grade Seven - Eight Level IV (56 items)</u>		
Pearson r Test-retest reliability		.88
Biserial r Item validity index (mean)		.29

PROJECT CAP

Boston Mountains Educational Cooperative
Greenland, Arkansas

Jack A. Hamilton
American Institutes for Research

Jearne Leffler
Director, Project CAP

The information reported herein was obtained pursuant to contract no. 300-77-0303 with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to document information according to their observation and professional judgment. Consequently, information, points of view, or opinions stated do not necessarily represent official Office of Education position or policy.

FOREWORD

This activity description was prepared as part of a study conducted by the American Institutes for Research (AIR) under contract No. 300-77-0303 to the U.S. Office of Education. The purposes of the study were to identify evaluated, exemplary career education activities; to recommend identified activities to the Joint Dissemination Review Panel (JDRP) of the Education Division, Department of Health, Education, and Welfare; to prepare descriptions of identified activities; and to develop a handbook with six models for evaluating career education activities.

The criteria established for screening activities in this study intentionally limited choices to those whose evaluation reports presented evidence of effectiveness. Close attention was given to the soundness of evidence in evaluation reports. A minimum requirement for this evidence of effectiveness was that some comparison standard be provided so that gains made by the students participating in the activity could be attributed to the impact of the activity. After confidence in the evidence of effectiveness was established, further criteria were applied. These criteria included consistent relationships between a well-planned assessment of needs, a statement of desired student outcomes, the selection of instruments, and the procedures used in data collection, management, and analysis.

This document describes one of ten projects that was selected from among 250 submitted. It presents one locale's way of successfully implementing a career education activity, the results of which are educationally significant. Although the description reflects an activity developed in response to local needs, other school districts with similar needs may wish to adapt parts or all of it according to their own circumstances and philosophy.

We are especially grateful to the staff of Project CAP and to the many school staff members who generously gave their time to answer questions from AIR site visitors. They extended a special kind of hospitality and spared no amount of effort to provide the information necessary to prepare this description. They made it possible for the site visitors to see the program in action, as well as to understand the philosophy and strategies that underlie its operations.

Project CAP materials are judged to be free of bias with regard to race, sex, age, income levels, and type of occupation.

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PROJECT OVERVIEW

- TITLE & LOCATION: Project CAP (Career Awareness Program)
Boston Mountains Educational Cooperative for Federal Programs
Box 13
Greenland, Arkansas 72737
- TYPE: Infusion
- PROJECT DIRECTOR: Jeanne Leffler
Ph: (501) 443-3336
- SETTING: This project serves students in grades K-6. In 1976-77, the project was implemented in six of the eight schools comprising the Boston Mountains Educational Cooperative headquartered in Prairie Grove, Arkansas. The cooperative is a consortium of eight school districts in a rural, mountainous area of north-west Arkansas. The estimated population in the geographic area served is 16,000 persons with a school enrollment of 5,100. Ninety percent of the population is from rural farm families; the remaining 10% are considered rural non-farming families. The project is presently functioning in 19 schools under a statewide dissemination program funded by ESEA Title IVC funds and funds from the State Department of Education.
- STAFF: The Project CAP staff consists of a half-time project director, two curriculum coordinators, a bookkeeper-secretary, and a machine operator.
- GOALS: The goals of Project CAP are to provide awareness of adult occupations among K-8 level students, along with regular instruction in basic academic areas. Special emphasis is placed on showing students that the studying they are doing in school is important and related to work they will encounter outside of school.
- EVALUATION DESIGN: The impact upon students of Project CAP activities implemented in 1976-77 was assessed by testing comparable groups of treatment and control students in February and March 1977.
- MATERIALS: Project CAP uses staff-developed Learning Activity Packets (LAPs) and other materials. At each grade level, two packets in each of 15 USOE occupational clusters plus two packets on self-awareness were developed, for a total of 32 packets at each level. The packets are sequential and blend easily into the regular curriculum, with career stories and academic skills infused into the appropriate regular lesson without requiring additional time.
- COST: The main cost items are 32 Project CAP LAPs for each student at each grade level; a teacher's manual at each grade level; and evaluation instruments. Potential additional costs include teachers' time spent in a pre-school year inservice training workshop.

PROJECT DESCRIPTION

The purpose of this section is to describe the origins of Project CAP and its staff-developed instructional materials, the management system, the participation of the community, the costs of implementing the program, and the available evidence for documenting its effectiveness.

PROGRAM DEVELOPMENT

Project CAP was developed with ESEA Title III funds by the Boston Mountains Educational Cooperative for Federal Programs, headquartered in the small mountainous town of Prairie Grove near Fayetteville. The cooperative pools the resources of eight school districts to develop needed programs for area school children, programs that might not be available to individual school districts.

Relation of the Project to the Target Population

Project CAP is a cooperative effort involving six school districts that are members of the Boston Mountains Cooperative in northwest Arkansas. The participating districts are: Elkins, Farmington, Greenland, Prairie Grove, West Fork, and St. Paul. Five of these districts are located in Washington County and one is located in Madison County. The estimated population in the geographic area served is 16,000 persons with a school enrollment of 5,100. Ninety percent of the population is from rural farm families; the remaining 10% are considered rural non-farming families. Fifteen percent of all families in Washington County and 33.1% in Madison County are classified as having an income less than the poverty level. The percent of all families having an income less than 75% of the poverty level was 9.8% for Madison County and 8.6% for Washington County. The median ages for Washington County is 25.3 years. The median age in Madison County is 35.0 years.

The school population is predominantly Caucasian as evidenced by the fact that there are only eight students who are American Indian and two who are Vietnamese. The age span of students in the target population range from nearly six years of age to just over 15 years of age. The number of years of teaching experience represented by the cooperative schools in Project CAP reveals a rather typical pattern. There are very few first year teachers and only thirty 5-year teachers. The average length of experience among teachers is about 10 years. Additional key characteristics of the target population are shown in the following chart.

	Enrollment K-12	No. of Teachers	Assessed Valuation	Area of Square Miles
Elkins	518	26	2,878,495	98
Farmington	771	40.5	5,487,535	33
Greenland	521	28	4,328,695	83
Prairie Grove	880	44.2	5,628,430	108
St. Paul	364	20.7	1,912,190	271
West Fork	824	38.9	3,324,365	131

Needs Assessment

Needs for student career awareness and skills in decision-making, creativity, forecasting, planning, and communication became apparent as the result of a two-phase needs assessment. The preliminary assessment of needs was conducted utilizing a survey and interview method. The total ninth grade population of the six school districts involved in the project was surveyed. All secondary level counselors and school administrators were surveyed, and selected parents and local business people were interviewed. The results of these surveys and interviews indicated a general need for increased career awareness. The next phase of the needs assessment was more specific and involved teachers, administrators, the total eighth grade population in the six school districts, parent groups and civic groups.

The following are the results of the ninth grade student survey in each of the six school districts: (1) 64% had made no vocational choices, (2) 58% felt that they did not have enough information to make a wise choice, and (3) 72% reported that it would have been beneficial to them if they had been given career information in the first eight grades. Eighth grade students in each of the six school districts were surveyed with the following results: (1) in response to the question: Would you like for your school classes to include learning about all kinds of jobs?, 63% replied -- yes, 25% replied -- no, and 13% replied -- don't know; and (2) in response to the question: Would learning about all kinds of jobs help you make better decisions about what you plan to do when you "grow-up"?, 71% replied -- yes, 15% replied -- no, and 14% replied -- don't know.

A copy of the survey instrument used to collect the eighth and ninth grade student needs assessment data is included in the Appendix.

The secondary level counselors surveyed responded that in some schools barely 5% of the ninth grade students had what appeared to be adequate career

awareness prior to entering ninth grade. Across all six school districts, the results of the counselor survey showed that counselors felt only 18% of incoming ninth graders had adequate preparation in career awareness.

Results from the survey of teachers of grades one through eight in the six school districts showed that: (1) 96% responded that students did not understand self in relation to the world of work, (2) 92% believed that the students did not have an awareness of realistic alternative choices in the world of work, (3) 91% reported that there was a need for career awareness as a part of the regular school curriculum, and (4) 95% expressed a willingness to participate in a career awareness project.

Each of the school districts had PTA or other community group meetings to discuss student career awareness needs and how best to fulfill them. Civic clubs in those school districts having such clubs met to discuss the same concerns. Reports from such meetings indicated that all groups viewed career awareness as a critical student need and that they all pledged their support to the development of a program to meet the need. In addition to the informal sampling of opinions of parents and civic leaders, numerous persons operating businesses within each of the districts were interviewed by the respective school superintendents. When interviewed, they all stated that career awareness was of prime importance.

School district superintendents and principals from all six districts indicated their view that the major career choice made during high school is whether to attend college or not. In addition, they contended that career awareness should be given top priority and that a properly conducted career awareness program in grades one through eight would provide valuable information in planning the curriculum needs of high school students.

On the basis of the survey, interview and discussion data described above, staff of the Boston Mountains Cooperative derived two career awareness needs. First, there is a need to broaden the knowledge of students regarding the world of work. Second, there is a need to develop as soon as possible in students the attitudes and skills required to enter that world. The communities that comprise the Cooperative are rural. As a result, students learn only of the existence of a limited number of adult occupations. Their greatest supplementary source is the media, which is not available to all children and which presents a distorted and unrealistic view of many careers.

The fact that youth in the communities making up the Cooperative learn only about a few, highly publicized careers underscored two key problems. First, a high proportion of the youth now in the Boston Mountains schools migrate

to find work. This is because there not only is a limited number of kinds of jobs but also because there is a limited number, in toto. This rural to urban movement of youth has been prominent on the American scene since the 19th century; however, no longer are cities filled with opportunities for unskilled workers. Rather, urban slums keep growing as the result of the rural arrivals; the situation is as true for whites as it is for blacks.

Second, food processing and other industries have been moving into the area of the Boston Mountains Cooperative. However, because of the lack of career education and vocational education, a pool of labor above the unskilled level has not existed. To staff properly, the new industries have had to import personnel for the higher paying jobs. The result has been no improvement in the lives of local families even in the fact of economic growth.

The meaning is clear: unless youth can have their horizons broadened and be equipped with the understandings and general skills promoted by career education, they are at a serious disadvantage, whether they migrate or not.

Program Planning

The needs assessment indicated that career awareness was of prime importance. Therefore, the six superintendents who comprised the administrative council of the Cooperative met to discuss the educational needs in career education and to plan appropriate strategies. It was decided that the program planning should have input from all school personnel, students, parents and community groups. In addition, various successful models of programs in career awareness were studied: (1) Project Impact, Des Moines, Iowa; (2) Project Implode, Bella Vista Schools, Salt Lake City, Utah; (3) Talents Unlimited, Mobile, Alabama; and (4) Career Education Program, Cobb County Schools, Marietta, Georgia. One of these model programs, Project Implode, was visited by Cooperative staff and a review of research findings on the topic of career awareness programs, grades K-8, was conducted. In addition, several college professors consulted with Project CAP staff, providing helpful ideas and materials.

Based on the needs assessment data and the planning process summarized above, an overall program goal and related objectives were written.

Goal: All students in grades one through eight should be given career awareness in pyramiding structure so that upon completion of the eighth grade the student would be able to express specific interest in a particular, realistically chosen, career cluster.

This goal represented an optimum situation; however, it assumed that 90% of

the students had the desired information upon completion of grade eight together with a realistic view of his or her abilities and interests, to make wise choices as a result of wise planning and forecasting. The results of the needs assessment showed that the above statement was not true within the six school districts. Further, it was concluded from the needs assessment data that only a relatively few students are sufficiently informed to realistically choose secondary school courses related to a career except those pertaining to college preparation.

The following process objectives were specified to ensure accomplishment of the above goal.

- Objective 1: To establish an effective career awareness program for students in grades one through eight.
- Objective 2: To produce career awareness learning packets which provide career awareness as well as a learning experience in subject areas such as math, reading, science, social studies and language arts.
- Objective 3: To develop a sequential curriculum for the program written in behavioral terms.
- Objective 4: To achieve total parental involvement in the program, leading to community acceptance and appreciation for the dignity of all occupations.
- Objective 5: To develop a program management system that is totally accountable.
- Objective 6: To record project activities in a step-by-step operation to permit duplication of this project in other districts if it is shown to be successful.

To measure the impact of the career awareness program on students, project staff decided to develop one data collection instrument on their own and to select another instrument developed by an independent test development organization. Assessment of the process objectives were to take place through the use of weekly status reports, checklists, questionnaires, etc.

To obtain funds for the project, a proposal was written and submitted to the Arkansas State Department of Education which administered federal Elementary and Secondary Education Act Title III funds for the state. The proposal was approved and funding started in July 1974, in time to prepare and conduct summer workshops for the 1974-75 school year.

CAREER AWARENESS MATERIALS AND ACTIVITIES

Career awareness was not thought of as another subject to add to the already crowded elementary curriculum, nor were teachers expected to subordinate subject matter to career education objectives. On the contrary, teachers were expected to pursue the effective teaching of their subject matter assuming that the content of career awareness education and the basic skills that form the heart of the elementary and middle school curriculum can both be made most meaningful to students if they are taught together.

A variety of ways were explored for infusing career awareness into the regular curriculum. They included: (1) learning centers, (2) resource people, (3) field trips, (4) films, (5) hands-on experiences, (6) role play, (7) games, and (8) learning activity packets. Among these approaches, project staff selected learning activity packets as the primary means for infusing career awareness into the existing curriculum. Project CAP learning packets were developed to show students that school subjects are important and related to the world of work by pairing a specific academic skill with a selected occupation. As teachers blended this career information into the various subject areas, they added a measure of relevance and practicality to the instructional process. One of the key expectations stressed by Project CAP was for every teacher to emphasize the contribution that subject matter can make to a successful career.

It was assumed that Project CAP learning packets would assist students in becoming aware that a subject matter area with its associated skills has actual value for their present and future achievement of goals. For example, in the study of fractions in the upper elementary grades, the occupation of chef is discussed. A chef's job involves the measuring of ingredients, such as 1/2 teaspoon or 1/4 cup. Students can see the importance of learning fractions, especially for this worker. In another example, the skill of telling time on a clock is linked to the occupation of cosmetologist in a learning packet that describes the importance of keeping track of time so customers are not kept waiting.

The curriculum was revised to include a scope and sequence chart that presented occupations and career education concepts to be taught across the 15 U.S. Office of Education clusters as well as a self-awareness cluster. Students would be exposed to a variety of occupations from entry level to the professional level in these 15 occupational clusters, which are shown on the next page. It was expected that through these clusters, students' perceptions and knowledge of the scope of the world of work would be broadened.

15 USOE OCCUPATIONAL CLUSTERS	
Agri-Business	Manufacturing
Business and Office	Marine Science
Communication	Marketing and Distribution
Construction	Personal Service
Consumer and Homemaking	Public Service
Environmental Science	Recreation and Hospitality
Fine Arts and Humanities	Transportation
Health	

In providing career awareness, each learning activity packet contained career information, academic information, and activities to heighten self-awareness.

Materials Development

The packets were written by Project CAP Coordinators and revised each year of the project based on feedback from participating teachers. For each grade level, two packets in each of the 15 occupational clusters plus two packets on self-awareness were developed for a total of 32 packets at each level. Since each packet was written linking an academic skill with an occupation, it could be infused into the ongoing curriculum by the content of the occupation or by the subject matter of the academic skill. The development cycle showed that in 1974 packets covering three occupational clusters were written, in 1975 the number of clusters covered increased to five, and in 1976 the final seven clusters were treated through packet development. At each grade level, a teachers' manual was written that included a sample lesson plan. A copy of a sample CAP packet (Environmental Scientists: Grade 7) is included in the Appendix.

Packet Components

Career Information. First, work is presented as a way of life. In the CAP packets, all types of work are presented as being respectable and necessary to society. Students are aided in discovering ways in which work can become a meaningful part of their lives. Second, students are made aware of the tasks performed by workers on specific jobs. Next, information is included on the tools that workers use on their jobs. This might range from a familiar tool, such as a tape measure for a carpenter to complex equipment, such as a computer

that a systems analyst uses.

Each packet includes an explanation of the attitudes that are important for each occupation. For example, sales people must enjoy working with the public and accountants must enjoy math and be attentive to detailed work. Each occupation requires a certain amount of training or education and students are given information on what kind of education that would probably be necessary for each career. For example, some jobs can be obtained with a high school education or less, others require on-the-job training, others require advanced technical or vocational school, while still others require a college degree. Finally, students are made aware of the economics of the career introduced in each packet. Statements such as "This person would make enough money to live comfortably," or "This person makes a high salary" are inserted to help students become aware of the financial benefits enjoyed by different workers.

Academic Information. As students progress in career awareness, they become increasingly aware of the connection between academic skills and the world of work. Each CAP packet contains activities for an academic skill necessary to the performance of the particular occupation included in the packet. The academic portion usually includes three sections: (1) introduction of the skill, (2) practice activities for that skill, and (3) a posttest over the career information or the academic skill. The activities may be used at the beginning of a unit to introduce the skill, as practice or reinforcement for skills already introduced, or as an evaluation at the end of a unit. Packets were designed to be used whenever teachers feel that the academic content of the packet would be most beneficial to their classes.

Self Awareness Activities. Students are able to explore and analyze their own feelings related to each occupation introduced through the learning activity packets. In the awareness stage, grades K-6, students are not asked to make decisions; rather, the packets introduce students to activities that will broaden their awareness so that in future years they may gain satisfaction with the work they do. It is necessary for students to recognize personal characteristics, needs, wants, and values for meaningful career development to occur. Activities and questions incorporated into CAP packets provide students with opportunities to better understand themselves. They begin to view themselves as unique human beings with a personalized contribution to make to the world of work.

Instructions to Teachers. Each packet includes a teacher page that lists performance objectives, summarizes the occupation, describes the packet and

offers suggestions for how to use it. Teachers are instructed in how to use and score the posttest that covers both career concepts and the academic skill. Bulletin board materials of printed letters and pictures, as well as a suggested layout, are provided. Teachers are encouraged to vary or add to the materials in any way they choose.

Implementation. Packets targeted for use in grades K-6 are designed to be completed in varying amounts of class time, from 20 minutes up to three days (if one or more students turns it into a class project), and to be infused into the ongoing curriculum. Packets for grades 7-8 are designed to occupy the same amount of class time, but they are occasionally used as separate units rather than being infused into the curriculum. Packet lists are distributed to participating teachers so that they can request CAP packets to fit into their lesson plans. Teachers are encouraged to use packets at the rate of at least one per week.

For example, the CAP packet on Meteorologist (5th grade) was infused into the weather unit in the science curriculum, permitting the description of this occupation to be interrelated with academic subject content. The learning activities involved students sometimes in individual work, sometimes with partners, sometimes in committees, and sometimes the entire class participated. One student became so interested that he did a class project on what was involved in becoming a meteorologist. At the conclusion of his project, he performed a skit as a TV weatherman for the entire class.

Those schools or school districts wanting to adopt or adapt Project CAP materials and activities should schedule a short workshop prior to the beginning of the school year. Participating in this workshop would be key administrators and teachers responsible for planning the implementation of the project and for setting up inservice/pre-use teacher workshops in each of the target schools. During these workshops, planning for the delivery and use of the materials, time scheduling, etc. would be stressed. In addition, academic skills of the various packets would be cross-indexed with the regular curriculum and approximate use dates of each packet would be designated in teacher planning books. Detailed project management procedures should be spelled out for project staff, principals and project teachers to follow along the lines of the discussion that follows under STAFFING AND MANAGEMENT.

Reactions to Materials and Activities

In general, students looked forward to using the packets and teachers were

very responsive to incorporating them into their classrooms. Based on a study of the weekly status reports and monthly summary sheets for all three years of the project, approximately 80% of participating teachers used all of the grade level packets in their classrooms. The remaining 20% of the teachers used most of those packets that were available. Parental reaction was also very positive. Two packets (waitress and dietician) on basic food groups at the second grade level illustrate packet impact on parents. In addition to such in-class activities as going step-by-step through sample menus and making bulletin board displays of menus that had to include the four food groups and outside-class events such as walking tours to the school lunch room and to grocery stores, there occurred "spin-off" activities involving parents. For example, students brought snack foods, available at home, to school and discussed how they did or did not fit into the four food groups. Later, they talked with their parents about upgrading the nutritional value of their snack foods. To cite another example, students in one classroom activity prepared highly nutritious sandwiches. Parents later reported their children preparing the same type of sandwich at home that they had put together previously in their classroom.

Teacher reaction data were collected in March 1978 from the teachers at Prairie Grove Elementary School. The teachers were asked to respond in writing to the question: "Can you give a brief account of the Project CAP program and your use -- or nonuse -- of the materials?" The specific comments of each teacher are shown below.

Reactions of Prairie Grove Elementary School

Teachers to Project CAP

Teacher A: I use the materials mainly as a supplement for independent reading. I usually pass them out and let the children read them. The skills that the units use are very good. We usually go over the skills lesson before they do it. I try to correlate the occupation with something we are studying or choose one that teaches a skill we are studying at the present time. The packets are very informative and well done.

Teacher B: Of all the federal programs we've had recently, this is one of the best...

I use the packets in two ways. One, as an activity in its own right. This is especially helpful when there are 10 or 15 minutes left in a period; it is a great "fill in."

But mainly I use the packets to correlate with the subject areas. I have ordered packets that correspond to many of the concepts that are taught at my grade level. For example, when

we study dictionary skills in English, I use the packets with my teaching unit. They are well prepared and a great help.

Teacher C: The project helped the children learn about many different jobs. We used the packets as extra work. The work at the back of the packets was useful as extra practice on the skills we had been working on in math and other areas.

Teacher D: It was more beneficial to me to be able to order just the packets I needed -- use them as they coincide with what we are working on in the room -- use as supplementary work. If an occupation is familiar to the child we discuss it. Children are then allowed to take the packet home after grading the test at the end.

Teacher E: I used them last year for my remedial reading and math program. I enjoyed them because they had many different levels for the materials and my students were on so many levels. It has been hard to get to them regularly this year because of so much material to cover in other subjects. I plan to use them as an extra activity for some this last nine weeks.

Teacher F: I have used the CAP material since its beginning. I like the fact that a learning skill is included with each. They make good fillers in the subject area for reinforcement, or sometimes introducing a new concept. The children seem to do well on the quiz section about the occupation, so they must enjoy learning about them. Some packets, of course, students relate more to than others and we go beyond the material given. I enjoy having them.

Teacher G: I enjoyed the packets immensely last year. We used at least two a week. The packets were enlightening with very good skills.

Teacher H: I have used a lot of the packets of CAP materials this year. When I have a few minutes of free time, I pass out the materials and we read, discuss and answer questions.

TEACHER I: Whole class -- general information regarding careers. Small groups -- reinforcement of specific skills being taught in the classroom.

When I ordered packets last Fall, I ordered with specific skills in mind. I fear the career was secondary.

Teacher Reactions to Project CAP Staff

Although there were a few teachers across the six participating schools who incorporated the minimum number of CAP packets into their classroom activities, the vast majority were very supportive of the CAP program and its staff. A key to their positive response was the fact that Project CAP coordinators were not

viewed as supervisory personnel and, therefore, were not seen as threatening. A more heavy-handed approach might well have "turned off" many teachers and principals.

PARENT AND COMMUNITY INVOLVEMENT

A major concern of the project is parent and community involvement. The Lay Advisory Council, which shares the responsibility for overall governance of the project with the Administrators' Council, is comprised of one member from the Community Councils in each of the six participating school districts. Thus, the role of the Lay Advisory Council is not merely advisory; it has a major supervisory function in the project.

To inform each of the communities in which Project CAP operates, Coordinators regularly speak at meetings of such civic groups as Lions Clubs, Junior Civic Leagues, and Rotary Clubs, and at PTA and school board meetings. Additionally, newsletters containing articles written by teachers and students who participate in the program are sent home with each student. A copy of a sample newsletter is included in the Appendix. Teachers are given a booklet entitled "CAP Resource People" that lists the names and addresses of community members who have volunteered to visit classes, or whom groups of students may visit to discuss their occupations. Parents are also invited to class to describe their occupations and their personal career development.

STAFFING AND MANAGEMENT

Staffing

To plan and carry out a program of career awareness as defined by the goal and objectives stated earlier, a set of project advisory and staff positions was established. These positions are listed below and described according to scope of responsibilities and major functions.

Administrators' Council. The Administrators' Council is, in effect, a grand council of the attendance area school administrators. It is composed of the superintendents of each participating school and shares authority for the project with the Lay Advisory Council. In its position of shared authority, the Administrators' Council affects the organization of each cooperating school as follows:

Functions:

1. The Administrators' Council coordinates the efforts of the cooperating schools so that the overall project goals can be accomplished. This is interpreted to mean that the total efforts of all project personnel are rendered available to the participating project schools.
2. The Administrators' Council aids in achieving the project goals, specifically, the goal of achieving a workable partnership between home, school, and community.
3. The Administrators' Council, in joint session with the Lay Advisory Council, considers, reviews, and advises the project director concerning community needs, attitudes, and opinions.
4. The Administrators' Council, in joint session with the Lay Advisory Council, reviews project reports written by the project director that need the expertise and points of view unique to the two representative bodies.

Lay Advisory Council. In joint session with the Administrators' Council, the Lay Advisory Council shares the authority for the project. The Lay Advisory Council is, in effect, a grand council of the attendance area citizens. It is composed of one voting member and one non-voting alternate from each Community Council. The Community Councils represent a cross-section of the communities cooperating in the project. The membership of the Lay Advisory Council and its relationship to the Community Councils from each school district are displayed below.

Community Council and Lay Advisory Committee

(*indicates Lay-Advisory Member)

Elkins Community Council

- * Support personnel, Title I & Migrant, female
- Nurse's Aide, City Hospital
- Teacher, Elkins
- Cook at School, Elkins
- Campbell Soup Line Worker
- School Bus Driver, Carpenter

Farmington Community Council

- * Teacher, female
- Service Station Attendant
- Housewife, Mother
- Factory worker
- Electrician

Greenland Community Council

- * School Nurse, Female
- Registered Nurse
- Pressman, Standard Register
- Teacher

Prairie Grove Community Council

- * Lumber Company, male
- Housewife
- Teacher substitute
- Secretary
- Housewife
- Grocery Store Manager
- General Contractor

St. Paul Community Council

- * Interior Decorator, male
Farmer
Chicken Grower
Housewife
Truck Driver

West Fork Community Council

- * SWEPCO Supervisor, Male
Grocery Store Owner
Personnel Manager, E.P.C.
Telephone Lineman
Lunchroom Supervisor
Catalog Order Clerk, Wards
Baldwin Piano Worker

The functions of the Lay Advisory Council are the same as those for the Administrators' Council.

Project Director. The project director is the point from which all other organizational authority and responsibility emanate. Although functions and authority are delegated to others within the organization, it is recognized that accountability resides within the project director's office.

Functions: The project director:

1. meets in joint session with the Lay Advisory Council and the Administrators' Council during their scheduled meetings and presents "State-of-Project" reports to the two councils. Additionally, the current problem areas experienced by the project personnel are presented for both the advice and help of the two councils in the resolution of these difficulties.
2. carries out, either personally or by specific delegation, the project dissemination functions.
3. arranges for evaluations on all project personnel by the relevant project management personnel at least once every three months.
4. manages all financial and property procurement authorizations as well as their accountability documents.
5. recommends to the council for ratification all personnel to be hired.
6. terminates project personnel, when appropriate, and after following approved project procedure.

Skills and Abilities Required:

1. Education: Master's degree in Education is considered a minimum requirement. Advanced work in vocational education and supervision is desired.
2. Experience: A supervisory position in the public schools for at least three consecutive years is required.

Curriculum Coordinator. Accountable to the project director, the curriculum coordinator represents project management in each individual school in the cooperative. It is the responsibility of the curriculum coordinator to help the teachers in grades K-8 with their project efforts, and to coordinate the curriculum activities of the teachers within the school. The curriculum coordinator serves as staff to the appropriate school principals on all matters pertaining to the project effort in the school, helping to phase the project into the normal operation of the school with a minimum of disruption.

Functions: The curriculum coordinator:

1. is responsible for the project in each individual school.
2. produces a weekly status report on the last work day of each week, and mails it (no later than Friday of that same week) to the project director.
3. coordinates the use of learning activity packets and ensures that additional packets are reproduced and distributed to the schools when needed.

Skills and Abilities Required:

1. Education: a Master's degree is considered a minimum requirement.
2. Experience: valid teaching experience in the public schools is mandatory.

Secretary/Bookkeeper. The project director's secretary/bookkeeper coordinates the project's schedule and reproduction needs with the Machine Operator and manages all routine records, filing, typing, reproduction of project material, and other duties normal to office routine as assigned by the project director.

Functions: The secretary/bookkeeper:

1. maintains the project's books (fiscal records) and prepares all necessary reports.
2. maintains inventory records of all project equipment and materials as assigned.
3. maintains a complete schedule of project goals and objectives, and when they are completed.

4. establishes and maintains, as directed, the filing system and document retrieval indexes that will provide ready access to the record of project implementation.

Clerk Typist. The clerk-typist's responsibilities are carried out under the direct supervision of the secretary/bookkeeper.

Functions:

1. typing and reproducing field test packets and other project materials.
2. typing status reports and other materials emanating from the schools.
3. establishing and maintaining project inventory records of equipment, materials, supplies, etc., located at the schools.

Machine Operator. This job includes volume reproduction of all project documents and curriculum packages and maintenance of supply lines between cooperating project schools.

Functions:

1. reproduces packets, project newsletters, and other project materials in the quantities required.
2. delivers educational materials from the project administrative offices to the various cooperating project schools as required.
3. coordinates the material needs of each cooperating project school.

Skills and Abilities:

Office Machines: Requirements include a functional knowledge of off-set presses, mimeograph duplicators, and typewriters and a functional capability in the handling of all reproduction equipment purchased by the project.

Principal (Elementary and/or Middle School). The principal's administrative duties involve the total school effort at the elementary and middle school level and, therefore, is in a key position to affect project implementation. It is therefore apparent that the principal, the curriculum coordinator, and the project director must work together closely, remembering that the project goal is but one of the many goals at each school. The principal prepares a status

report on the last regular school day of each week. The status report is mailed to the project director no later than Friday of the same week. The status report is designed to provide project management with an administrative overview of project activities within the school and from the perspective of the legally responsible operating administrators.

Elementary and/or Middle School Teacher: Project Teacher. Without question the project succeeds largely on the effort, the attitude, and the demonstrated cooperation of the project teacher. The project teacher: (1) works with the curriculum coordinator to develop the expertise necessary (a) to understand, evaluate, and diagnose the students' actual needs, abilities and interests, (b) to use and evaluate career awareness curriculum materials specific to each individual student, and (c) to apply that expertise; and (2) prepares a weekly status report on the last regular school day of each week.

Management Strategies

A short status report is completed each week by every participating teacher and principal, providing a communication channel between school staff and project CAP coordinators and a means by which the Project CAP director can monitor implementation of project-related activities. These status report forms are displayed on the next page.

There is periodic follow-up with teachers regarding their usage of packets. Every two months, the project director informs the six participating principals of packet usage by their teachers. In addition to the data on packet usage obtained from the teachers' weekly status reports, project staff gain useful information on teacher implementation of career packets and other career activities from project-designed planning and summary sheets. The General Planning List is furnished to aid teachers in scheduling the usage of the packets at the beginning of the school year. The titles of all packets available at a given grade level are listed across from columns for each of the months in the school year. Teachers are encouraged to put a check mark under the month in which the packet is to be used.

The Summary Sheet is intended for use in reporting monthly progress. It includes the titles of all available packets and a space at the top to write in the name of the month. Opposite the name of the packet used, check marks are placed. Information on activities involving career-related people, resource people, and field trips are also included. At the end of each month, two copies are given to the principal. Space also is available for teachers to express their subjective reactions to the effectiveness of the materials.

PRINCIPAL'S WEEKLY STATUS REPORT

Name: _____ School: _____ Date: _____

Project personnel that visited you during the week:

Comments on their visits:

Do you have enough information about the project? ☐ yes; ☐ no
If no, please state the need and/or the project personnel you want to talk with:

In general, are the project activities in your school satisfactory, in your opinion? ☐ yes; ☐ no

Comments and suggestions on the project:

TEACHER'S WEEKLY STATUS REPORT

Teacher: _____ School: _____ Date: _____

Name of Packet Used This Week: _____

Check the following which apply to you this week.

- _____ Met with Coordinator
- _____ Received materials from Coordinator
- _____ Resource Person Name: _____
- _____ Field Trip, Where: _____
- _____ Additional Career Awareness Activity, What: _____
- _____ Need to see Coordinator

Comments: _____

Inservice Training

To prepare teachers in participating school districts to implement the Project CAP program, inservice workshops are held in the summer preceding the school year. The workshops last three days. The following topics comprise the curriculum for each workshop:

- Developing a philosophy of Career Education and Career Awareness
- Concepts in Career Education and Career Awareness
- Planning for Career Awareness in the Classroom
- Planning Learning Centers for Career Awareness
- Using Community Resources

Following the session on "Planning for Career Awareness in the Classroom," the workshop participants meet in small groups and develop classroom units in career awareness. After the workshop session on "Planning Learning Centers for Career Awareness, the teachers divide into small groups and develop plans for setting up such learning centers in their own schools. In addition, when the session on "Using Community Resources" is concluded, teachers are asked to recommend names of resource people from their respective communities. Using information furnished by the participants, Project CAP staff later contact the recommended resource persons. A profile is written on each community person who agrees to serve as a career resource contact. At the end of the summer, all the profiles are put together and published in a booklet, entitled "CAP Resource People." Copies of the booklet are distributed to teachers in the participating schools. A sample page from the booklet is included in the Appendix.

During the course of each school year, inservice training is conducted on an individualized basis while coordinators are carrying out weekly visits in the schools. Each teacher receives training concerning how to use and enrich the instructional packets, while the coordinators receive suggestions for improving packets and ideas for developing new ones.

COSTS

The 1974-77 budget for Project CAP was \$204,427. The six participating districts paid \$47,856 of that amount. The average cost per student, per year was \$22.56. Costs for salaries included the project director, two curriculum coordinators, a secretary/bookkeeper, a clerk-typist, and a machine operator. The school districts provided office space for the director and coordinators as well as space for packet development work, printing, and packet storage. The following table presents costs for the three years of project development.

Table 1: Costs

	1974-75	1975-76	1976-77
Project Personnel	59,382	58,061	55,328
School Personnel Training	3,993	2,966	3,741
Equipment, Materials, and Consumables	7,687	9,486	3,783
	<u>\$71,062</u>	<u>\$70,513</u>	<u>\$62,852</u>

The estimated costs of replicating the Project CAP program in an adopting school are shown below:

Table 2: Replication Costs

ITEM	COST
Set of 32 consumable packets	\$1.00 per student*
Teacher's manual for each grade level	\$2.00 per manual*
Consultant fee (optional)	\$200.00 (2 days of a Project CAP consultant, at \$100 per day) plus travel expenses
*does not include shipping charges	

EVIDENCE OF EFFECTIVENESS

Interpretability of Measures

Project CAP staff administered two data collection instruments, one project-developed and one developed by an independent test development organization.

The Career Awareness Test (CAT). The CAT is a staff-developed instrument comprised of 30 multiple choice items and designed to measure knowledge of selected occupations and the training/education required to enter them. The instrument has three different versions: one for grades 1-3, one for grades 4-6, and one for grades 7-8. It is designed for group administration and the questions are read orally by the examiner.

Validity of the CAT. Prior to the drafting of items for the CAT, a review of relevant literature and materials was conducted. The Encyclopedia of Careers and Vocational Guidance, the Occupational Outlook Handbook, materials from Ohio State University's Center for Vocational Education, from the Oklahoma State Department of Vocational Education, from Cobb County, Georgia, and selected commercially published materials were reviewed. Based on this review, Project CAP staff selected 15 occupations from each of the 15 U.S. Office of Education career clusters. These occupations were selected on the basis of present and forecasted demand, and were representative of the full range of positions on the career ladder from entry level through professional level.

Using the total of 225 occupations across the 15 career clusters as their reference group, Project CAP staff wrote a minimum of 10 test items for each of the 15 clusters. These 10 or more items for each of the 15 clusters were administered to a pilot class at each of the levels to find the most discriminating items. An item analysis was conducted on the results obtained from each of the pilot classes. The two items from each cluster that best discriminated students according to their knowledge of occupations were combined to form separate 30-item versions of the instrument for each of the three levels.

Reliability of the CAT. To determine the reliability of the three versions of the CAT, each version was administered to 100 students at the respective grade levels. Each version of the instrument was divided into two equal parts and the scores on one half were correlated with the scores on the other half by computing Pearson Product-Moment correlations (corrected by the Spearman-Brown Prophecy Formula). The following internal consistency reliability coefficients were obtained:

<u>Level</u>	<u>r</u>
Grades 1-3	.68
Grades 4-6	.77
Grades 7-8	.71

The Career Knowledge Test. Published by Evaluative Research Associates, Inc., St. Louis, Missouri, the Career Knowledge Test is designed for students in grades 1-3 and assesses their knowledge of the world of work. Project CAP staff selected the Career Knowledge Test because the items included in it test knowledge of occupations which are representative of all 15 U.S. Office of Education clusters. It is a 30-item picture instrument in which items test knowledge of the similarities and differences of various occupations and of their required tools. The reliability of the instrument is shown by a reported internal consistency reliability coefficient of .85.

The Orientation to Career Concepts/Worker Activities Scale. Also published by Evaluative Research Associates, the Orientation to Career Concepts instrument includes a series of scales designed to measure career awareness of students in grades 4-8. Project CAP staff selected the Worker Activities Scale because it measures knowledge of what different workers do in various occupations that are representative of the 15 U.S. Office of Education career clusters. It is a 20-item scale; items were written in a five-response, multiple choice format. The reliability of the scale is evidenced by a reported internal consistency reliability coefficient of .76.

Credibility of Evidence

Evaluation Design. Project CAP staff used a posttest only, matched control group model to evaluate the effectiveness of the project activities. To serve as control schools for the schools in the Boston Mountains Cooperative that participated in the project, six schools outside the Cooperative having no formal career education programs were selected. These schools were matched with the project schools with respect to: (a) school population; (b) number of teachers; (c) expenditures/ADA; (d) average daily attendance; (e) average assessed valuation; (f) geographic location; (g) socioeconomic factors; (h) curriculum; and (i) other contextual variables.

Evidence of Comparability of Treatment and Control Schools.

• Population of treatment and control schools

Project Schools: Population									
School	Grade								Total
	1	2	3	4	5	6	7	8	
Elkins	34	34	30	43	49	22	44	50	306
Farmington	54	41	56	49	51	53	59	58	421
Greenland	23	27	32	29	38	45	45	47	286
Prairie Grove	88	76	71	80	67	71	56	58	567
St. Paul	28	27	44	21	28	30	20	35	233
West Fork	65	63	56	54	70	77	67	88	540
TOTAL	292	268	289	276	303	298	291	336	2353

Control Schools: Population									
School	Grade								Total
	1	2	3	4	5	6	7	8	
Charleston	47	53	41	53	42	51	62	71	420
Deer	29	18	23	27	26	23	23	25	194
Eureka Springs	32	38	38	43	30	28	36	34	279
Green Forest	48	58	51	54	68	72	78	66	495
Pea Ridge	53	37	37	34	56	43	51	42	353
Yellville	55	41	54	54	45	55	50	57	411
TOTAL	264	245	244	265	267	272	300	295	2152

- The average number of teachers at the six treatment schools was 33.3; the average number of teachers at the six control schools was 30.3.

• Expenditure per ADA of treatment and control schools

Treatment Schools	Expenditure Per ADA	Control Schools	Expenditure Per ADA
Elkins	\$795	Charleston	\$712
Farmington	723	Deer	764
Greenland	838	Eureka Springs	1,013
Prairie Grove	755	Green Forest	756
St. Paul	884	Pea Ridge	719
West Fork	697	Yellville	736

• Average assessed valuation, ADA, and expenditure per ADA

	Average Assessed Valuation	Average ADA	Average Expenditure Per ADA
6 Treatment Schools	\$3,583,285	604	\$782.00
6 Control Schools	\$3,798,705	581	783.50

- The six treatment and six control schools were geographically located in the rural, mountainous area of northwest Arkansas.
- Socioeconomic factors: The occupations of parents from the treatment and control school districts included limited farming, poultry raising, cattle raising, truck and orchard crops, logging, light industry, and service jobs.
- The curriculum of all twelve schools appeared comparable, e.g., nine of the 12 schools used the same reading series.
- The student populations from all 12 schools appear to have comparable exposure to media outside the school. All areas have access to a weekly county paper and in a few of the locations a daily newspaper. All areas can receive at least one clear network TV channel and an educational channel.

Data Collection Procedures. Students in the treatment and control schools were administered the CAT, the Career knowledge Test, and the Orientation to Career Concepts/Worker Activities Scale in late February and March 1977. The instruments were administered by Project CAP staff after they had received special training in administering them, including practice in reading the questions orally to refine their pronunciation, pacing, and manner of administration. Project staff scored all students' responses to the instruments and were responsible for all data analyses.

Evidence of Impact

Data Analyses. Mean posttest differences between treatment and control schools by grade level were analyzed using the t-test for independent samples. Tables 1, 2, and 3 included in the Appendix present the means, standard deviations, t-values, and significance levels for treatment and control schools on the Career Awareness Test (CAT), the Career Knowledge Test, and the Orientation to Career Concepts/Worker Activities Scale. The results presented in these tables demonstrate that the treatment schools invariably out-performed the control schools by a wide margin on the posttest. On all three instruments, at every grade level, group differences were highly significant.

Evidence that the Effects Are Educationally Meaningful

The evaluation plan used, the data collected and the resulting analyses provide reasonably convincing evidence that Project CAP produced educationally significant results. The treatment and control schools were equivalent on such variables as school population, school staff per student, district expenditure

per ADA, average daily attendance, average assessed valuation, geographic location, socioeconomic factors, curriculum, and exposure to information outside the school. The use of comparable control schools appears to rule out the possibility of explaining the results in terms of other variables such as maturation effects, practice effects, and outside-school experiences. In addition, all mean differences between treatment and control schools exceeded one-third of a standard deviation; in fact, for grades 1-3 the treatment mean scores exceeded the control mean scores by more than one standard deviation on the Career Awareness Test. The large sample that included grades 1-6 and the very high level of statistical significance attained across all grades indicate that the Project CAP goal of significantly increasing students' awareness of careers was achieved.

Favorable Review by Joint Dissemination Review Panel

The Joint Dissemination Review Panel (JDRP) was established by the Education Division of the Department of Health, Education, and Welfare in 1972. The joint U.S. Office of Education--National Institute of Education (NIE) Panel currently has 22 members, eleven from each agency, appointed respectively by the Commissioner of Education and the Director of NIE. The JDRP meets periodically to review the evidence of effectiveness submitted for a wide variety of federally supported educational products and practices, with effectiveness being the sole criterion for approval by the JDRP. It is charged with the responsibility of ensuring that educational interventions--projects, products, or practices--have been shown to have positive impacts on their recipients before they are disseminated with federal funds or endorsed by the Education Division.¹

In May 1978, the JDRP reviewed Project CAP and approved it for nationwide dissemination.

¹Tallmadge, G.K. The Joint Dissemination Review Panel: IDEABOOK. Washington, D.C.: NIE/DHEW, September 1977.

CONCLUSION

In a rural area of Northwest Arkansas, Project CAP was organized to meet the career awareness needs of students, grades K-8. The high degree of stringency with which the evaluation of the Project CAP program was carried out and the exceptionally strong results provide reasonable assurance that the program is making substantial progress toward meeting those needs. Those school districts with similar rural populations comprised predominantly of Caucasian students may consider adapting the Project CAP program to their local settings, knowing that the program has been demonstrated to be effective in its original locale.

Appendix A

BOSTON MOUNTAINS COOPERATIVE FOR FEDERAL PROGRAMS

CAREER AWARENESS PROGRAM SURVEY December, 1973

This survey is designed to find out what knowledge students have about career training and job opportunities. Please read each question and mark the appropriate answer.

	Yes	No	Don't Know
1. Do you know what kind of job you plan to work at when you "grow up"?			
2. Will you need to finish high school to get the job you want?			
3. Will you need to take special courses in high school to get the job you want?			
4. Will you need to get training after high school to get the job you plan to do?			
5. Will you need to go to college to get the job you plan to do?			
6. Will you need to take special courses in high school to go to college?			
7. Are there lots of jobs available in the type of work you want to do?			
8. Will you have to move to a different state to work at the job you plan to do?			
9. Do you know how much money you will be making?			
10. Would you like for your school classes to include learning about all kinds of jobs?			
11. Would learning about all kinds of jobs help you make better choices about what you plan to take in high school?			
12. Would learning about all kinds of jobs help you make better decisions about what you plan to do when you "grow up?"			
13. What kind of job do you plan to do?			

1st choice

2nd choice

3rd choice

14. Did you learn about this kind of job from
- ☐ a. school
 - ☐ b. home
 - ☐ c. books or magazine
 - ☐ d. friends
 - ☐ e. TV
 - ☐ f. other

Appendix B

SOURCE - RESOURCE

AGRI BUSINESS AND NATURAL RESOURCES

1. University of Arkansas Agricultural Experimental Farm
Dean Glenn Hardy, Dean of Agri
University of Arkansas
Agri 205
Fayetteville, Arkansas 72701
Bus: 575-2252

- a. Any size group may visit
- b. Willing to speak or demonstrate in the schools
- c. No charge for services
- d. Career information materials but directed toward high school youths
- e. Willing to participate in career developing activities

Subject:

- a. Agriculture and natural resources

2. Mr. Paul E. Bayley, Dairy Farmer
Route #1
Elkins, Arkansas 72727
443-2786

- a. Prefer medium group, 10-20, to visit dairy
- b. Willing to speak in the schools
- c. No charge for service
- d. Willing to participate in career development activities

Subjects:

- a. How milk is produced
- b. Managing a dairy
- c. Transportation of milk
- d. How milk is homogenized, bottled and shipped

3. Mr. Clarence J. Longtin, Sheep Farmer, Purebred Breeder
Route 1 Box 6 (also see Manufacturing)
West Fork, Arkansas 72774
Res: 839-3128

- a. Large group, 20+, may visit farm
- b. Willing to speak in the schools
- c. Expenses and grass for sheep (on lawn)
- d. Career information materials may be obtained at County Agents office
- e. Willing to participate in career development activities

Subjects:

- a. Feeding of sheep
- b. Wool

AGRI BUSINESS AND NATURAL RESOURCES

4. Dr. John L. Meason, Chemistry Instructor
Chemistry Department
University of Arkansas
Fayetteville, Arkansas 72701

- a. Medium group, 10-20, may visit University
- b. Willing to speak or demonstrate in the school
- c. No charge for service
- e. Willing to participate in career development activities

Subjects:

- a. Research in Nuclear Chemistry and Physics
- b. Natural resources
- c. Agriculture

5. Carl Rose and Staff
Washington County Agriculture Extension Service
Courthouse Annex
442-9821

Cooperative Extension Service
P.O. Box 1071
Fayetteville, Arkansas

- a. Representatives visit classes to tell about home economics or agriculture careers.



ENVIRONMENTAL SCIENTISTS

Today we are concerned with environmental protection. Environmental pollution poses a threat to society. Environmental scientists help us live in our physical environment. These scientists study the history, composition and characteristics of the earth's surface.

Some environmental scientists do research to increase scientific knowledge. Others try and solve the practical problems of pollution. Still others teach in colleges and universities.

There are several types of environmental scientists. Geologists, geophysicists, meteorologists, and oceanographers are considered environmental scientists. We are going to look at the work of the geologist.



Geologists study the structure, composition and history of the earth's crust. Their work helps us locate natural resources. Environmentalists are telling us that we are using up our petroleum sources. Geologists are constantly trying to locate minerals and solid fuels from the earth.

The work of geologists is very important to us. The training they receive is important to them. Persons seeking careers as geologists will need at least a master's degree. Many times a Ph.D. degree is required.

Careers in geology involve a lot of outdoor work. Many times travel is necessary. Travel to distant countries may also be involved in their work.

Employment opportunities for geologists are very favorable. Geologists are employed by federal agencies, particularly the U.S. Geological Survey. Many geologists are employed at colleges and universities.

Geologists earn very high salaries. They usually work many long hours. However, they enjoy their work and feel it is helpful to mankind and the environment.





Earthquakes, Geologists, and Rocks

Geologists study chemical compositions and changes in minerals and rocks. For example, they determine whether underground rocks will bear the weight of a building or structure, or they determine if the building or structure is located in an earthquake-prone area. As you know, earthquakes are a cause of very high death tolls all over the world.

Rocks are important to geologists, but what are rocks? They are simply combinations of minerals. Rocks are classified according to their formation. The study of rock formation is very important.

Rocks are formed by one of three processes: pressure, heat or change. Let's look at each classification.



Sedimentary rock is formed by pressure. When the earth was very young, the seas crept onto the land and receded over and over again.

Each time this happened, a layer of mud and sand settled out and remained behind. As one layer after another built up, the lower layers began to compress. This pressure formed rock. Rock which is layered is called sedimentary rock.

Molten material is found within the earth. Molten material that cools and hardens forms igneous rocks. This is rock formed by heat. Igneous rocks usually are found well below the surface of the earth.



Metamorphic rocks are those which have been changed by heat and pressure from igneous or sedimentary rocks. These rocks were formed during the mountain-forming period when the bending of the earth's crust caused the tremendous heat and pressure necessary to change rocks. Metamorphic rocks are usually layered or banded.



Skim the following questions. Then look again at the preceding paragraphs skimming over the material. Now, fill in the blanks answering each question.

1. _____ are a cause of very high death tolls
2. _____ determine if buildings or structures are in an earthquake-prone area.

3. Rocks are_____.
4. Rocks are classified according to their_____.
5. Rocks are formed by three different processes.
List these processes.
- _____
- _____
6. List three types of rocks.
- _____
- _____
- _____
- 7._____ rock is formed by pressure.
- 8._____ rock is formed by heat.
- 9._____ rock is formed by change.
10. Molten material is found within the_____.
- 11._____ rocks usually are found well
below the surface of the earth.
- 12._____ rocks are usually layered or
banded.

CAREER QUIZ

Fill in the blanks with the missing words from the list below. Not all of the words listed will be used.

environmental scientists or geologists, employment, high, Ph.D., low, U.S. Geological Survey, Geological Rock Association, master's, outdoor, indoor

1. _____ study the structure, composition and history of the earth's crust.
2. Geologists need at least a _____ degree.
3. Careers in geology involve a lot of _____ work.
4. _____ opportunities for geologists are favorable.
5. Geologists may work for a Federal agency called the _____.
6. Geologists earn a very _____ salary.

"Better Schools Through Cooperation"

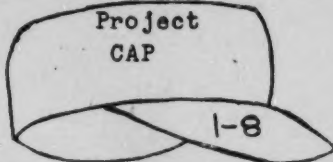
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For Federal Programs

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Drawer 188
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CAP Newsletter Vol II No. October 1975



Project CAP
is an E.S.E.A.
Title III Project

This month's newsletter is devoted to the experiences of pupils and teachers in CAP related activities.

FIELD TRIP

Stars, computers, indian relics! Farmington third graders in Mrs. Boynton's and Mrs. Brown's rooms explored these realms when they took a field trip to the University of Arkansas. Dr. Sharrah at the planetarium showed the star formations and explained their movements. All will be looking for the red "Christmas Star" (Jupiter) which will be seen in the east in December. An archaeologist, specializing in early Indian studies, kept the children fascinated with arrowheads, pottery, weapons and other relics found in this area.

At the computer center, Dr. Ashmore showed the children how computers work, including the "brain". What a lot of wires and circuits! The children got an insight into several exciting career possibilities and couldn't decide whether they wanted to be computer scientist, or operators, astronomers or archaeologists.

Mrs. Boynton
Mrs. Brown
Farmington, Arkansas

HEALTH CAREERS

Mrs. Davis, 2nd. grade teacher at Farmington Elementary School, encouraged her students to bring in information about the various careers they were studying in Project CAP's Health Cluster.

Here are some of the things the students shared with the class:

Cathy Gregg told about her father. "My daddy is a nurse at the V.A. Hospital. He helps the doctors take care of people. He works 8 hours, sometimes days and sometimes nights. When he goes to work at 7:00 A.M. he gets off at 4:00 P.M.

Michael Gabbard reported about his grandmother, "My grandmother works at the City Hospital, she works a long day".

Kelly Bertschy's mother is a nurse. Kelly says it is hard work but her mother likes it.

Mike Center knew someone who worked in the surgery rooms at Washington Regional Medical Center. He said sometimes they work nights and sometimes they work days.

Mrs. Davis said they learned that where one works affects the salary they receive as does the previous training and experience.

Mrs. Davis
Farmington, Arkansas

The Sixth Grade at St. Paul

The sixth graders at St. Paul are an enthusiastic group of young people. To provide a relevant learning situation for them we are using the Career Awareness Program as a long range teaching unit. There are three basic stages of this unit. First the students choose a career. Next, they must apply for a position in the career they have chosen. Hopefully, after completing this stage we will be able to dramatize a real life situation in which they must find a place to live, pay their bills, and choose how to spend and save their earnings.

The opportunities for teaching communication skills in this unit are endless. Since the students must fill out social security card applications, make job applications, and actually have dramatized interviews, they must use reading, listening, speaking, and writing skills.

One of the most rewarding aspects of this unit however is the interest and participation of the students. All of the students have chosen a job they want to apply for. Most of them have a newspaper ad that corresponds with their particular job. So far in our classroom we have nurses, secretaries, truck drivers, diesel mechanics, policeman, rodeo rider, and a basketball coach. We also have an egg grader, plumber and a carpenter.

We progress as interest and enthusiasm dictates. Schedules or plans are flexible and can be altered without upset. For example our initial plan was to select and apply for a job using the Job Application Packet. Then we were going to use the Career Packets on the different occupational clusters. After selecting a job and filling out social security card applications, we decided to introduce the packets on Health Careers. This was a great idea because some of the students decided they were more interested in that field after they were exposed to it.

Our time schedule is flexible also. Sometimes more time is spent than usual. For example when we were using the Registered Nurse Packet, some students learned how to take blood pressure, pulse, and respiration. They were so eager to participate that more than one hour was spent in the classroom, plus 45 minutes of recess time. Other days, however we may spend very little time. The unit can be stopped or started at any time.

Very little teacher preparation time is required to teach this unit. CAP provides packets, newspapers, and ideas to help. The interest of the students provides additional incentive for the teacher to plan with them in the classroom. We hope that stage three, the dramatization of a real-life situation, will be carried out. Communication skills as well as math, social, and economic skills will be taught in a meaningful way.

Dolly Walker, Teacher

A First Grade at Greenland

The class was engaged in a rather fascinating discussion about Dental Technicians and how important it was that they be able to "tell time" in order to know how long to let a mold for false teeth set. We were starting a unit of Health Occupations and at the same time learning how to tell time. Unfortunately, the discussion about technicians and their needing to know how to tell time went by the wayside, because the "Tooth Fairy" seemed more interesting they thought. The teacher, trying desperately to regain the gist of the lesson, injected the fact that the tooth fairy also had to know how to tell time or otherwise he or she would not know when to bring the money for lost baby teeth. This seemed to delight the class and gave an even greater desire to learn about telling time that day.

Mrs. Carolyn Boone, Teacher

Appendix E

The Means, Standard Deviations, t-Values, and Significance Levels for Treatment and Control Schools on Three Tests

Table 1
Career Awareness Test (CAT)

Grade Level	N	Mean	SD	t-value
1: Treatment	292	12.4	2.7	19.79**
1: Control	264	8.3	2.2	
2: Treatment	268	17.3	4.3	13.44**
2: Control	245	12.9	3.1	
3: Treatment	289	19.0	3.9	12.28**
3: Control	244	15.0	3.6	
4: Treatment	276	14.8	3.4	6.05**
4: Control	265	13.0	3.1	
5: Treatment	303	16.9	3.9	8.16**
5: Control	267	14.4	3.2	
6: Treatment	298	17.1	3.8	6.64**
6: Control	272	15.1	3.3	
7: Treatment	291	15.6	4.3	6.64**
7: Control	300	13.4	3.9	
8: Treatment	337	17.6	10.1	4.84**
8: Control	295	14.6	3.8	

**significant at the .001 level

6

Table 2
Career Knowledge Test

Grade Level	N	Mean	SD	t-value
1: Treatment	292	20.9	4.0	12.38**
1: Control	264	16.5	4.5	
2: Treatment	268	20.5	4.3	4.88**
2: Control	245	18.6	4.3	
3: Treatment	289	22.4	3.8	4.89**
3: Control	244	20.8	3.6	

**significant at the .001 level

Table 3
Orientation to Career Concepts: Worker Activities Scale

Grade Level	N	Mean	SD	<u>t</u> -value
4: Treatment	276	9.6	3.0	5.84**
4: Control	265	8.1	2.9	
5: Treatment	303	10.5	3.0	5.31**
5: Control	267	9.2	2.9	
6: Treatment	298	11.4	3.1	7.30**
6: Control	272	9.4	3.3	
7: Treatment	291	12.8	3.3	2.80*
7: Control	300	12.1	2.8	
8: Treatment	337	13.5	5.7	2.80*
8: Control	295	12.5	3.1	
**significant at the .001 level				
*significant at the .005 level				

PROJECT CDCC

Coloma Community School District
Coloma, Michigan

Carol B. Kaplan
American Institutes for Research

Lee Downey
Director, Project CDCC

30 June 1978

The information reported herein was obtained pursuant to contract no. 300-77-0303 with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to document information according to their observation and professional judgment. Consequently, information, points of view, or opinions stated do not necessarily represent official Office of Education position or policy.

FOREWORD

This activity description was prepared as part of a study conducted by the American Institutes for Research (AIR) under contract No. 300-77-0303 to the U.S. Office of Education. The purposes of the study were to identify evaluated, exemplary career education activities; to recommend identified activities to the Joint Dissemination Review Panel (JDRP) of the Education Division, Department of Health, Education, and Welfare; to prepare descriptions of identified activities; and to develop a handbook with six models for evaluating career education activities.

The criteria established for screening activities in this study intentionally limited choices to those whose evaluation reports presented evidence of effectiveness. Close attention was given to the soundness of evidence in evaluation reports. A minimum requirement for this evidence of effectiveness was that some comparison standard be provided so that gains made by the students participating in the activity could be attributed to the impact of the activity. After confidence in the evidence of effectiveness was established, further criteria were applied. These criteria included consistent relationships between a well-planned assessment of needs, a statement of desired student outcomes, the selection of instruments, and the procedures used in data collection, management, and analysis.

This document describes one of ten projects that was selected from among 250 submitted. It presents one locale's way of successfully implementing a career education activity, the results of which are educationally significant. Although the description reflects an activity developed in response to local needs, other school districts with similar needs may wish to adapt parts or all of it according to their own circumstances and philosophy.

We are especially grateful to the staff of Project CDCC and to the many school staff members who generously gave their time to answer questions from AIR site visitors. They extended a special kind of hospitality and spared no amount of effort to provide the information necessary to prepare this description. They made it possible for the site visitors to see the program in action, as well as to understand the philosophy and strategies that underlie its operations.

Project CDCC materials are judged to be free of bias with regard to race, sex, age, income levels, and type of occupation.

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PROJECT OVERVIEW

- TITLE & LOCATION: Project CDCC (Career Development Centered Curriculum)
Coloma Community School District
P.O. Box 218
Coloma, Michigan 49038
- TYPE: Add-on via career education units
- PROJECT DIRECTOR: Lee Downey
Ph: (616) 468-8341
- SETTING: This project serves students in grades K-6. In 1975-76, the project was implemented in the district's three elementary schools. Coloma is a rural community in southwest Michigan. The estimated population in the area served is 12,000 persons, with 1,600 students enrolled in grades K-6 each year. A large segment of the parents is employed in business and industries related to agriculture. The project is currently being replicated at other locations throughout the state of Michigan under a statewide dissemination program funded by an ESEA Title IV-C Grant.
- STAFF: During the four-year development and field testing period, Project CDCC staff consisted of a project director and two project coordinators. An evaluator was hired on a contract basis.
- GOAL: The goal of Project CDCC is to provide career development instruction to rural students at the elementary level (K-6). This instruction is designed especially to increase students' awareness of life roles, to help them formulate realistic self concepts, and to foster the development and use of decision-making skills.
- EVALUATION DESIGN: The impact of Project CDCC activities upon students was assessed in 1975-76 by testing comparable groups of treatment and control students at the beginning and again at the end of each instructional unit.
- MATERIALS: The project has developed a comprehensive, articulated career development curriculum for K-6 students. The 27 units (four for each of grades K-5 and three at the sixth-grade level) include learning and practice in math, communication arts, science, and social studies; they also convey the career development aspects of an individual's growth. Teachers are also encouraged to use a few commercial materials.
- COST: The main cost items are teachers' time spent in teacher training (a two-day inservice training session) and the Project CDCC units for each grade level.

PROJECT DESCRIPTION

The purpose of this section is to describe the origins of Project CDCC and its staff-developed instructional materials, the participation of the community, the management system, the costs of implementing the system, and the available evidence documenting its effectiveness.

PROGRAM DEVELOPMENT

Project CDCC was developed with ESEA Title III funds by the Coloma Community School District. Currently funded by the Michigan Department of Education's Experimental and Demonstration Centers Program, the project is designed to assist districts in meeting student career development needs.

Relation of the Activity to the Target Population

The Coloma Community School District is located in southwest Michigan. The estimated population in the geographic area is 12,000 persons, with 1,600 students enrolled in grades K-6 each year. A large segment of the parents is employed in businesses and industries related to agriculture. The community is comprised primarily of middle-class families. The school district is composed of the following ethnic groups: Native American -- 2%; Black -- .2%; Asian American -- .3%; Latin American -- 1.5%; White -- 96%.

Staff Survey

Coloma is an isolated, rural area in which students are not exposed to a wide range of occupations. Local student needs for an orientation to possible life roles and skills in decision making were identified using 1970-71 state assessment scores, locally-developed checklists of students' career awareness, and other local data. For example, teachers were surveyed and gave their opinions of student needs in different curriculum areas and in career and self awareness. Four local needs were identified on the basis of the state assessment scores and the teacher survey: (1) teachers needed a vehicle for making the curriculum relate to life activities and roles; (2) students were unaware of their own abilities, interests, and aptitudes; (3) students were unaware of the options available to them due to limited information and exposure; and (4) students needed to make better educational and occupational decisions.

Program Planning

The staff survey indicated that career awareness was of prime importance. The Coloma superintendent sensed that the community was ready for an innovative program, which caused him to set the stage to facilitate program development. He met with key teachers in the district to discuss career education needs and to plan appropriate strategies. It was decided that program planning should have input from parents, teachers, administrators, and students. In addition, two successful models of programs in career awareness were studied: Cobb County Schools' Career Education Program in Marietta, Georgia; and the Mesa, Arizona Public Schools project. Both of these model programs were visited by Coloma staff, and writings on career education by national educational leaders were studied. The following publication was consulted during the planning process: Occupational Choice: An Approach to a General Theory by Ginzberg. Writings by Havighurst, Super, and Tennyson were also used as references in the planning phase.

Project Goal

Based on the survey data and the planning process described above, the major project goal was set forth: to enhance the career development of elementary students by building specially developed curriculum units into the existing educational program. To measure the impact of these units on students, project staff developed objectives-referenced tests to be administered before and again after each unit was taught. A management system was developed to monitor project implementation and evaluation.

Measure of Achievement

An objectives-referenced approach was used as the general strategy for measuring attainment of objectives. During the first project year (1972-73), project staff struggled with the issue of developing a standardized test. It was felt that such a test would be so specific to the local area that it would not be applicable elsewhere. On the other hand, a more generalizable test would probably not measure what was being taught in the classroom. Another important factor was that staff felt they did not have the time to go through the norming procedure required for a standardized test. Therefore, the project evaluator, who was hired on a contract basis and was involved in the project from the beginning, encouraged staff to utilize an objective-referenced approach; the criterion adopted was that 75% of the students would demonstrate mastery of 75% of the objectives.

To translate the overall project objectives into student performance objectives that were measurable, project staff went through the following steps. First, a list of career development themes was derived from each project objective. Then, each of the themes was subdivided into goal statements for the various career development curriculum units. Finally, each unit goal statement was translated into one or more performance objectives. The result was a total of 141 performance objectives. Student accomplishment of these performance objectives indicated the degree to which each overall project objective was attained.

Before introducing any information about a unit, teachers pretested their students, studied the pretest results, and determined the areas in which students needed the most work by reviewing the unit's objectives. While teaching the unit, they used an observational checklist to record students' behavior. Teachers marked a form when students worked in small groups. Students continued working in small group activities until all students had an opportunity to meet the relevant performance objective.

After completing each capsule (unit subtopic), teachers decided whether or not students needed additional practice in the areas studied. After completing the unit, teachers did any necessary reviewing and included any indicated enrichment. The posttest was then administered. Students were assessed twice during each nine-week grading period (one pretest and posttest for each unit).

Source of Funding

During the 1971-72 school year a local committee representing parents, teachers, administrators, and students provided input for the original proposal that was written and submitted to obtain ESEA Title III funds. Funding began in July 1972.

MATERIALS AND ACTIVITIES

Selection of Unit Approach

Project CDCC staff did not want to present career development instruction in isolation from the existing elementary curriculum. However, a key decision was made early in the project to develop specific career education units that combined career information with academic skills. Project staff considered the unit approach after exposure to the Cobb County project. Their decision to develop units rather than to adopt a general infusion approach was motivated by three underlying assumptions.

First, units would have more staying power than general infusion techniques. Since units are discrete and concrete, they have a higher probability of teacher use and reuse, while teacher interest in infusion strategies may wane after the post-inservice training novelty has worn off.

Second, the effectiveness of units would be easier to evaluate than the effectiveness of diffuse infusion techniques. Perhaps more importantly, it is easier to attribute student gains to unit exposure than to exposure to infused career information. Teachers are more likely to continue using units when they can see that students are learning specific skills as a result of participating in the unit's learning activities.

Finally, units would be more attractive to teachers in adopting school districts. They comprise a neat package for dissemination and are easier for new teachers to review and assess than, for example, a handbook of general strategies for infusing career education concepts into the ongoing curriculum.

Having completed a staff survey and determined the project goal, and having selected the unit approach to implementing this goal, project staff and teachers in the Coloma Community Schools conducted an extensive literature search in order to derive the project objectives and the optimum unit content and format.

Project Design

To define the content of the units to be developed and implemented in grades K-6, project staff wrote the following three objectives.

Objective 1: Demonstrate an Increased Awareness of Life Roles. The varied careers that people may follow during their lives are the central focus of this objective. The following 12 career clusters are those addressed by the project. They resulted from a review of materials from the Cobb County, Georgia project and from the Mesa, Arizona public schools project, with several adaptations made by the Coloma project director:

- | | |
|-----------------------------------|-------------------------------------|
| ● Natural resources | ● Clerical |
| ● Manufacturing | ● Transportation and communications |
| ● Construction | ● Public service |
| ● Technology and research | ● Personal and product service |
| ● Arts and entertainment | ● Hospitality and recreation |
| ● Business, sales, trade, finance | ● Health |

Objective 2: Formulate Realistic Self Concepts. A series of developmental tasks, which describe the sequential components of an individual's career development, emerged from the literature review conducted early in the project. They represent a synthesis of the various theoretical constructs exemplifying "healthy" career development. Following are examples of career development tasks that the project aims to help students accomplish:

<u>Career Development Tasks</u>		
<u>Grades</u>	<u>Developmental Period</u>	<u>Tasks</u>
K-3	Fantasy	Children make unrealistic choices based on dreams and wishes.
4-6	Late Fantasy, Early Tentative	Children should be helped to see that there are still a number of years before career plans must be set.
7-9	Tentative	The individual begins to recognize the problem of career choice; decisions are tentative but more realistic.
10-12	Late Tentative, Realistic	The individual's considerations become much more practical as well as important. The individual's career hypothesis is reformed to make adjustments for changing interests, abilities, values, and increased knowledge of life roles.

Objective 3: Develop and Use Decision-Making Skills. Several sub-objectives were written to clarify the intent of this decision-making objective (similar sub-objectives were also written to clarify the intent of the first two objectives); they are displayed here.

- Sub-objective: The student will set personally relevant goals as part of his/her decision making.
- Sub-objective: The student will identify and use information about self and life roles as part of his/her decision making.
- Sub-objective: The student will understand decision making as identifying alternatives, selecting the alternative most consistent with goals, and taking steps to implement a course of action.

Achievement of this decision-making objective is viewed as laying the groundwork for students to be able to set and achieve individual educational and career goals.

Materials Development

The materials development process consisted of combining occupational clusters, career development tasks, and career decision-making sub-objectives with the existing elementary curriculum to develop specific career education units. The career development tasks and academic skills, which become more sophisticated as students mature, defined the unit sequencing pattern. To develop units that would be feasible for teachers to implement, Coloma project staff and teachers followed a cyclic mode of developmental activities. Each year, over a period of three years, curriculum units were written, implemented in classrooms, evaluated, and revised.

In the first project year (1972-73), units were pilot-tested in approximately three classrooms per grade level in one school. The same teachers who developed those initial units on a voluntary basis implemented them in their classrooms. In 1973-74, the units were revised on the basis of the 1972-73 data and were field-tested in all classes in Coloma's three elementary schools. The units were again revised, on the basis of the 1973-74 results, and implemented in all three schools in 1974-75.

This continuous refinement process allowed modifications to be made in each unit each year. It also allowed the classroom teachers to have a large amount of input in the development and revision of the materials.

The methodology underlying the development of the units reflects the project's goal and objectives. Career education is viewed as nurturing the idea that education and subsequent involvement in a career can be more fulfilling if a student has gained the tools of career development -- i.e., the ability to maintain a realistic notion of who he or she is, of what particular traits and abilities make that person unique, and of how to assess and structure each life role for more rewarding consequences. The schematic on the next page illustrates the units' integrated approach to career education. K-6 learning activities are related to instructional outcomes that form a basis for the decisions students have to make during their junior and senior high school years.

Career Awareness & Exploration

Life-role Understandings

(Objective 1)

Realistic Self-concept Formulation

(Objective 2)

DM Skill Development & Utilization

(Objective 3)

Unit Format and Activities

Each teaching unit is composed of four sections. The first section identifies the unit's elements, themes, goals, and performance objectives. It also includes an evaluation approach or specific test items for determining the extent to which students accomplish the objectives. In the second section, the unit's teaching strategies are described and organized into unit subtopics or "capsules." This part also includes suggested resources to be used while teaching each capsule. The third section contains tips to help teachers implement particular learning activities. The fourth and final section contains student activity sheets to be duplicated in classroom quantities.

The units employ a variety of teaching strategies and techniques, including the use of activity sheets, classroom discussion, and audiovisual materials. Techniques that are particularly important for career development are presenting role models, role-playing/simulation, and field trips. The following examples illustrate what is done at different grade levels. At the kindergarten level, teachers bring resource people representing school workers and community helpers into their classrooms. First graders simulate a food store, in which students

can purchase items. In grade two, students role-play in conjunction with a bakery unit. Third-graders simulate a restaurant, in which students play the roles of hosts/hostesses and waiters/waitresses. A field trip is taken in conjunction with a forestry unit in fourth grade. Sixth-grade teachers bring in role models dressed to fit their occupations in transportation and the TV industry.

The following chart contains a list of unit titles by grade level, along with the self-awareness or occupational awareness areas that are addressed in each unit.

Career Development Curriculum Units for the Elementary Classroom		
	UNIT TITLE	FOCUS
K	ME	Self Awareness: Physical Self
	INSIDE ME	Self Awareness: Emotional Self
	SCHOOL WORKERS	Occupational Clusters: Public Service, Clerical
	COMMUNITY HELPERS	Occupational Clusters: Public Service, Natural Resources, Health
1	FRIENDSHIP	Self Awareness: Social Self
	A FEW OF OUR FAVORITE THINGS	Occupational Clusters: Arts, Technology, Research, Personal and Product Services
	TELEPHONE WORKERS	Occupational Clusters: Transportation and Communication
	THE FOOD STORE	Occupational Clusters: Business and Sales
2	MY ENVIRONMENT	Self Awareness: Environmental and Physical Self
	BAKING INDUSTRY	Occupational Clusters: Natural Resources, Manufacturing
	FIREFIGHTERS	Occupational Clusters: Public Service
	PET INDUSTRY	Occupational Clusters: Public Service, Personal and Product Services
3	DAIRY INDUSTRY	Occupational Clusters: Health, Manufacturing
	RESPONDING BEHAVIOR	Self Awareness: Emotional and Social Self
	RESTAURANT INDUSTRY	Occupational Clusters: Health, Hospitality, and Recreation
	AIRLINE WORKERS	Occupational Clusters: Health, Hospitality, Recreation, Clerical, Technology and Research
4	FORESTRY	Occupational Clusters: Natural Resources
	BEST FOOT FORWARD	Self Awareness: Self Appraisal, Goal Setting and Social Self
	POSTAL WORKERS	Occupational Clusters: Public Service
	POLICE WORKERS	Occupational Clusters: Clerical, Public Service
5	OUR GROUP AND ME	Self Awareness: Group Roles and Social Self
	MANUFACTURING	Occupational Clusters: Clerical, Business, Sales and Trades, Manufacturing
	HOSPITAL WORKERS	Occupational Clusters: Technology and Research, Clerical, Personal and Product Services, Health
	MY FEELINGS ARE ME	Self Awareness: Emotional Self
6	GOING ABROAD, ANYONE?	Occupational Clusters: Transportation and Communication, Hospitality and Recreation
	ME, MYSELF, AND I	Self Awareness: Physical, Emotional, Social and Intellectual Self
	T.V. INDUSTRY	Occupational Clusters: Business, Sales and Trades, Arts and Entertainment, Transportation and Communication, Technology and Research

Implementation Sequence

On the next page is the suggested schedule for implementing the full 27-unit sequence. A unit is studied for approximately two hours per day for a period of two to three weeks. As can be seen from the schedule on the next page, one unit is taught during each nine-week grading period.

The career education activities are completely integrated into the existing subject matter. For example, the Restaurant Industry unit includes the following subject areas and activities: health (categorizing food according to the four basic food groups), language arts (spelling, capitalization, and grammar), and math (adding, subtracting, dividing, and using graphs).

Key Materials and Equipment

The key materials for this project are the 27 curriculum units. Each unit is a teacher guide that contains master evaluation and activity sheets to be duplicated for each student. The units also have a "Resources and Materials" column that indicates what items are needed to conduct the learning activities within each capsule (unit subtopic). Suggested materials other than what is included within the unit are items less likely to be found in a typical school setting, inexpensive miscellaneous items, or items that could be brought from home. The resources and materials suggested for the Restaurant Industry are displayed in the following chart.

<u>Restaurant Industry Unit</u> <u>Materials and Resources</u>		
Silverware	Plastic cutlery	Tagboard
Paper plates	Construction paper	Menu
Plastic cups	Crayons	Scrap paper
Napkins	Pictures of food	Truck photos for schools
Tables and chairs	Paints	(obtained from the
Play money	Hot plate/electric skillet	American Trucking
Dish soap	Mop	Association, Inc.)
Scissors	Glue	Ingredients for preparing
3" x 5" cards	Broom	restaurant offerings
		Black magic markers

Teachers are encouraged to go beyond the curriculum guides to bring in other materials or to add any activities that meet the needs of their students. They are asked to use the note columns in the units to log changes, pitfalls to be avoided next time, questions, new ideas, things to be done differently in the

PROJECT CDCC UNIT SEQUENCE

	Cycle 1	Cycle 2	Cycle 3	Cycle 4	Suggested Number of Teaching Techniques		
					RM	RP/S*	FT
K	Me	School Workers	Inside Me	Community Helpers	6	0	2
1	Friendship	A Few of Our Favorite Things ²	Telephone Workers	The Food Store*	3	1	2
2	Firefighters	My Environment	Baking Industry*	Pet Industry	3	1	2
3	Dairy Industry	Responding Behavior	Restaurant Industry*	Airline Workers	3	1	2
4	Forestry Workers	Best Foot Forward	Postal Workers*	Police Workers	3	1	2
5	Our Group and Me ¹	Manufacturing*	Hospital Workers*	My Feelings Are Me	3	2	2
6	Going Abroad, Anyone?*	Me, Myself, and I	TV Industry*		2	2	2

¹Implement early in school year

²May be implemented over three (3) quarters

RM - Role Models

RP/S* - Role Playing/Simulation

FT - Field Trips

future, etc. In this way the units are adapted to be more appropriate for the local setting. Since Coloma is located in a big fruit-growing area, some third-grade teachers supplement or replace dairy farming activities with information pertinent to the fruit-growing industry; they consider this a more appropriate occupational area for their students, since it is more tangible in their environment. A sixth-grade teacher uses a record to teach an ethics class in conjunction with a self-awareness unit; the record presents situations that make students more aware of their self-concepts and give them practice in decision making.

Reactions to Materials and Activities

In general, students looked forward to using the CDCC materials. They seemed to especially enjoy the self-awareness units. Teachers also reacted positively to the program, indicating they would recommend using the units to their colleagues. Teachers were asked to use a five-point rating scale (with five being the highest possible response) to answer the question: "To what degree would you recommend this unit to other teachers?" The mean response for 280 ratings was 4.2.

An unanticipated beneficial side effect of the program was that it helped teachers plan better in other academic areas. Through Project CDCC they were encouraged to look at what they had done -- to evaluate their work on the basis of student posttest performance to see the results of their teaching. They utilized this feedback to organize their future teaching.

PARENT AND COMMUNITY INVOLVEMENT

Project staff feel it is imperative that parents and community members be involved in the project so that students will become more aware of life roles. The CDCC curriculum units were structured to provide students with role playing experience, field trips, and interaction with community resource people. This affirmative posture toward parent and community involvement has been visible from the beginning of the career education movement in Coloma -- parents were members of the local committee that provided input for the original project proposal. During inservice training teachers are encouraged to build a background for the unit they will be presenting by visiting, observing, and talking with people working in the occupations addressed by the units.

Two specific activities are utilized to involve parents and the community in the project; these are the use of role models and field trips. For the role

model activity, a resource person (who could very well be a parent of one of the students) is contacted and asked to give a presentation to the class. If appropriate, the person is requested to bring the tools used in his or her role and to wear his or her work clothes or uniform. A typical presentation lasts 20-25 minutes.

Parents volunteer to go with students on field trips. In addition, when making arrangements for a field trip, teachers discuss with the site contact person workers with whom the students may talk and find out what kinds of hands-on experiences the students may have. Before the trip, a variety of learning materials and/or activities are used to enable students to capitalize upon what they see during the tour. Students compile a list of questions for which they seek answers during the field trip.

Parents are typically quite supportive of Project CDCC. The community displays a positive attitude toward work, and parents like the idea of having career education expose students to different occupations. They feel it is important to train students for careers while they are in school. There seems to be no negative community feeling about school expanding students' awareness and no resistance from parents who might want their children to follow the traditional occupational patterns of the area. Since Coloma residents are engaged in a limited number of occupations, the project has included information about other types of careers (although, as indicated above, materials are sometimes adapted to make them more relevant to the younger students).

STAFFING AND MANAGEMENT

Staffing

Project CDCC staff consisted of a project director and two project coordinators. An evaluator was hired on a contract basis. The functions of each of these key staff members are displayed in the chart on the next page.

The three major staff members devoted four years to the project, covering the development and field-testing period. Staff competencies were assessed by a validation team from the Michigan State Department of Education, which commended the Coloma School District for having attracted and held faculty members who were creative, dedicated, and enthusiastic.

Staff Functions

- | | |
|----------------------|--|
| | <ul style="list-style-type: none">● Planning the project● Working with parents, teachers, administrators, and students in developing the proposal that resulted in project funding● Developing strategies to organize the district's support services and decision makers to facilitate and monitor the program |
| Project Director | <ul style="list-style-type: none">● Obtaining project approval from the Board of Education● Obtaining commitment of central office and building administrators to the project's philosophy and methods, as demonstrated by resource allocations for materials, training, and field trips● Obtaining teacher commitment for training and project implementation |
| | * * * |
| | <ul style="list-style-type: none">● Facilitating project installation and maintenance● Conducting in-service training to help teachers implement the project curriculum units● Giving follow-up assistance so the units were used as intended |
| Project Coordinators | <ul style="list-style-type: none">● Occasionally spot-checking test administration during visits to schools● Double-checking test-scoring and routinely inspecting student answers for indications of possible bias in test administration● Supervising and organizing data tabulation● Maintaining a file of activity logs |
| | * * * |
| Evaluator | <ul style="list-style-type: none">● Developing objective-referenced tests● Conducting data analyses |

Management Strategies

The initial management thrust came from the superintendent, who was very committed to the project. For the three key staff positions he selected teachers within the system (for example, one of the project coordinators had been a

junior high science teacher). During the first project year the superintendent was instrumental in obtaining released time for key teachers to draft the units. In other words, the superintendent was an educational leader who tried to provide opportunities for motivated people to exercise their creativity.

Another important management theme dealt with how the units fared in the classroom. At early stages of the project, evaluation results showing the impact of units on students were used in the revision and improvement of curriculum materials. In addition to the data from objective-referenced tests and evaluation instruments, teacher logs and questionnaires provided feedback to the project for decision making and revision of procedures. Those wanting to adopt or adapt Project CDCC should be aware that while decisions were made at the district level by project staff, they were based on feedback from teachers who were implementing the units. The project director felt that there should be teacher involvement in the decision to implement the project rather than having that decision be made independently at the district level and then be transmitted down to local-level staff.

Inservice Training

The objectives of Project CDCC staff training are that each participant will: (1) increase his or her understanding of career development (self-awareness and career awareness) at the elementary level; (2) increase his or her understanding of Project CDCC and its conceptual framework; (3) understand the relationships and purposes of unit components -- i.e., objectives, the delivery system, and evaluation; (4) be prepared for using the teaching techniques included in the unit delivery system, e.g., field investigations and role-playing; (5) be prepared in planning for unit implementation; and (6) become familiar with evaluation data collection procedures. It is assumed that if staff achieve these six training goals, they will be more effective in implementing the CDCC units and thus will facilitate student achievement of the three major project objectives.

Staff development activities consist of a two-day training session; both large- and small-group training methods are utilized. During the first day teachers are briefed on the training schedule and goals. They are introduced to the concepts of career development and self awareness. They then engage in self awareness activities. During the afternoon they are introduced to the concept of career awareness and then participate in sessions concerning field trips and role playing/simulation.

During the second day teachers are briefed on the career education concept and career development. They are introduced to the CDCC program framework and

to the unit format. They learn about the teacher's role in program evaluation and how to use role models in the classroom. They then plan for unit implementation in grade-level groups.

Participants are requested to complete the form presented in Appendix A in order to assess the training program's effectiveness.

COSTS

Project CDCC received \$440,395 in federal funds during the four-year development and pilot/field-testing period. These monies were from ESEA Title III funds. Costs for salaries included the project director and the two project coordinators. The school district contributed to the project by providing office space for the three project staff members as well as telephone use. The program served a total of 5,800 pupils during the four years for an average cost of \$75.93 per pupil-year. This cost was computed by dividing the total project budget by the total number of student participants.

The table on the next page presents costs for project installation and for subsequent years. These costs indicate the expense involved in project adoption by other school districts.

EVIDENCE OF EFFECTIVENESS

Claims of Effectiveness

It is claimed that utilizing the CDCC curriculum will increase students' awareness of life roles, help students formulate realistic self-concepts, and help them develop and use decision-making skills.

Interpretability of Measures

There are 141 performance objectives across the 27 units. Tests of the attainment of these objectives are administered before and again after the unit is taught. The tests were developed by the teachers who designed the curriculum units and were revised over the three-year development period on the basis of pilot and field test results. The tests have high face validity in that they are closely related to the unit content.

Evidence of Impact

At the end of the third year of the project (1974-75), the decision was made jointly by the Coloma project and the Michigan Department of Education to

Approximate Costs for Adoption of Project CDCC*

INSTALLATION (Non-recurring Costs):	Staff Training (1 teacher)	\$60-90	
	Curriculum Units	6	(Units at levels K-5 are \$1.50 each; 6th grade units are \$2.00 each.)
	Commercial Materials	0-20	(depending on LEA resources already available)
	TOTAL	\$66-116	
YEARLY USAGE COSTS (Recurring Costs):	Miscellaneous materials and supplies	\$ 9.60	
	Printing of activity/evaluation sheets for 24 students	\$12.00	
	Field trips, two per year (Varies, depending on LEA transportation costs and field trips taken)		
	TOTAL	\$21.60 + cost of field trips	

* Note: All cost figures are based on a unit of intervention that includes one teacher and 24 students.

seek a site where the effectiveness of the CDCC materials could be tested.

School personnel from Centreville, another town in southwest Michigan, had previously approached Project CDCC personnel to express their interest in beginning some organized career development activities of their own. Since Centreville resembled Coloma in important aspects (especially in having a strong agri-business base, in being a small, rural town, and in the ethnic, socio-economic, and cultural makeup of the community), Centreville was selected as the experimental* site.

The town of Mendon, located eight miles from Centreville, was contacted regarding its willingness to serve as a control site. The Mendon Community

* The term "experimental" is used in a non-technical sense to designate the site where program effectiveness was to be tested.

Schools agreed to act in this capacity, testing one classroom per grade level. The class selected for testing a particular unit was alternated among the two or three classes at each grade level to reduce the respondent burden for any given class at the control site.

During the 1975-76 school year, the Coloma Community Schools continued to use the curriculum materials in all K-6 classrooms in its three elementary schools, which were designated field test sites. With project staff serving as coordinators, the same materials were used at the same grade levels in the Centreville elementary school, the experimental site, in the same manner as they were used in Coloma. Mendon elementary students took the unit tests on a pre-post basis, serving as the control site. Centreville staff received three days of training during the week before school started; approximately three teachers per grade level participated in the group training. Mendon teachers were given an orientation to help them understand the evaluation design and to ensure their participation in such a manner as would maintain the design's validity.

Makeup and Comparability of Evaluation Samples. The five participating schools offered similar educational programs, had similar educational policies, and were alike in other relevant factors. The demographic data on the next page illustrate the comparability of the field test, experimental, and control sites.

Comparability of the three sites in terms of academic achievement can be determined by reviewing data from the Michigan Educational Assessment Program. This yearly statewide testing program includes objectives-referenced tests in reading and mathematics at the fourth-grade level. The data shown are scores from the fall 1974 testing for Centreville and Mendon and from the fall 1973 testing for Coloma (this seems to be the most appropriate comparison, since the CDCC units were introduced in Coloma during the 1973-74 school year).

Unit Tests. The CDCC units were evaluated using objectives-referenced, primarily paper-and-pencil (multiple choice) tests; observational checklists were used to assess achievement on some of the performance objectives. In all cases the tests were administered and checklists completed by the classroom teacher. Instructions to teachers on administering the unit evaluation were given in each unit; these called for the teacher to read the directions aloud, but all questions were to be read and responded to in writing by students themselves. Project staff mailed unit evaluations to the control school at various times throughout the year, corresponding to when the units were being taught and tests were being

Comparative Demographic Information

	Field Test Site (Coloma)	Experimental Site (Centreville)	Control Site (Mendon)
Location	Southwest Michigan	Southwest Michigan	Southwest Michigan
K-12 Enrollment	3,108	935	945
Number of Teachers	132	44	47
Number of Students per Teacher	24	21	20
State Equalized Valuation per Student	\$18,836	\$16,514	\$20,223
Total Tax Mills	23.376	24.500	23.000
\$ Spent per Child	\$ 1,224	\$ 1,292	\$ 1,148
Curriculum Type	Traditional self- contained classroom with grouping for reading and math	Traditional self- contained classroom with grouping for reading and math	Traditional self- contained classroom with grouping for reading and math
Community Classification	Primarily middle- class rural	Primarily middle- class rural	Primarily middle- class rural
Occupational Orientation	Agribusiness and industry	Agribusiness and industry	Agribusiness and industry

State Assessment Results

Percentage of 4th-grade Students Attaining 75% or more of State Objectives

<u>Coloma</u> (N = 240)		<u>Centreville</u> (N = 80)		<u>Mendon</u> (N = 80)	
Reading	Math	Reading	Math	Reading	Math
35.2	63.6	46.4	69.6	41.8	70.1

administered at the treatment schools. Tests were administered in treatment and control schools at the same time. (This was verified by project coordinator visits to the control school.)

Credibility of Evidence

Aware that test results might be attributed to teacher bias in administering and scoring the tests, project staff introduced the following procedures to reduce that possibility. Procedures for administering unit evaluations were addressed during the inservice training. Follow-up assistance was given by the project coordinators, who occasionally spot-checked the administration of tests

during visits to schools. Experimental and field test teachers scored tests and recorded results for their own students; the project coordinators checked the scoring for these schools. Control test papers were scored by project personnel (control teachers had the evaluation sheets but not the performance objectives by which to score them). Student answers were routinely inspected for indications of possible bias in test administration. For example, if all students in a class answered an item or items identically, this was a signal that the teacher might have "taught to the test" or might have given excessive assistance during test administration. A validation team from the Michigan State Department of Education concluded that the data had been carefully collected and handled; all data calculations that were checked were confirmed to be correct. In all, there appears to be no reason to suspect biased test administration and no doubt as to the accuracy of the data tabulation and analysis.

Whenever possible, all students were pre- and posttested. However, for some of the test items it was not practical to collect pretest measures. For example, this was one of the performance objectives for the kindergarten unit entitled Inside Me, which focuses on self-awareness: "The student will demonstrate an awareness of the feelings found in himself/herself, as measured by the completion of a 'feelings' booklet." This objective was not pretested since it was unlikely that students would be able to achieve the objective prior to instruction.

There were substantial differences in posttest performance between experimental and control groups in favor of the former; to substantiate this impression, statistical analyses were computed by AIR. For every objective, chi-squares have been calculated between the Mendon control group and the Centreville experimental group. A separate chi-square was computed for the pretest and posttest results on each objective. The intent was to ascertain the number of cases in which a nonsignificant difference on the pretest was coupled with a significant difference on the posttest in favor of the Centreville experimental group.

As stated above, there were 141 performance objectives for the entire K-6 program. Of these, 83 had pretest and posttest data from Centreville and Mendon; 24 had posttest data only. The remaining 34 objectives had no data from the Mendon control group. These objectives were so specific to the unit content that there was no point in testing them at the control school. For example, the previously cited performance objective for the kindergarten unit Inside Me was not tested at Mendon; it did not seem justifiable to ask students to make a "feelings" booklet without receiving the accompanying instruction. The table on

the next page presents a graphic display of the performance differences among students at the three sites. A table in the appendix presents the chi-squares and significance levels for differences in objective attainment between the experimental and control groups, as measured by the objective-referenced tests. In this table, the last digit of each objective number represents the major project objective to which the performance objective is related. In this manner the reader can see how many performance objectives are related to each project objective and how successful the materials were in effecting achievement of each of the three project objectives.

As these tables show, there were significant posttest differences in favor of the experimental group over the control group. Furthermore, these data are evidence that the project was successful in achieving all three of its major objectives (at least 74% of the objectives related to increased awareness of life roles, formulating realistic self-concepts, and developing decision-making skills revealed substantial differences in posttest performance in favor of the experimental group).

Evidence That Effects Are Attributable to the Intervention

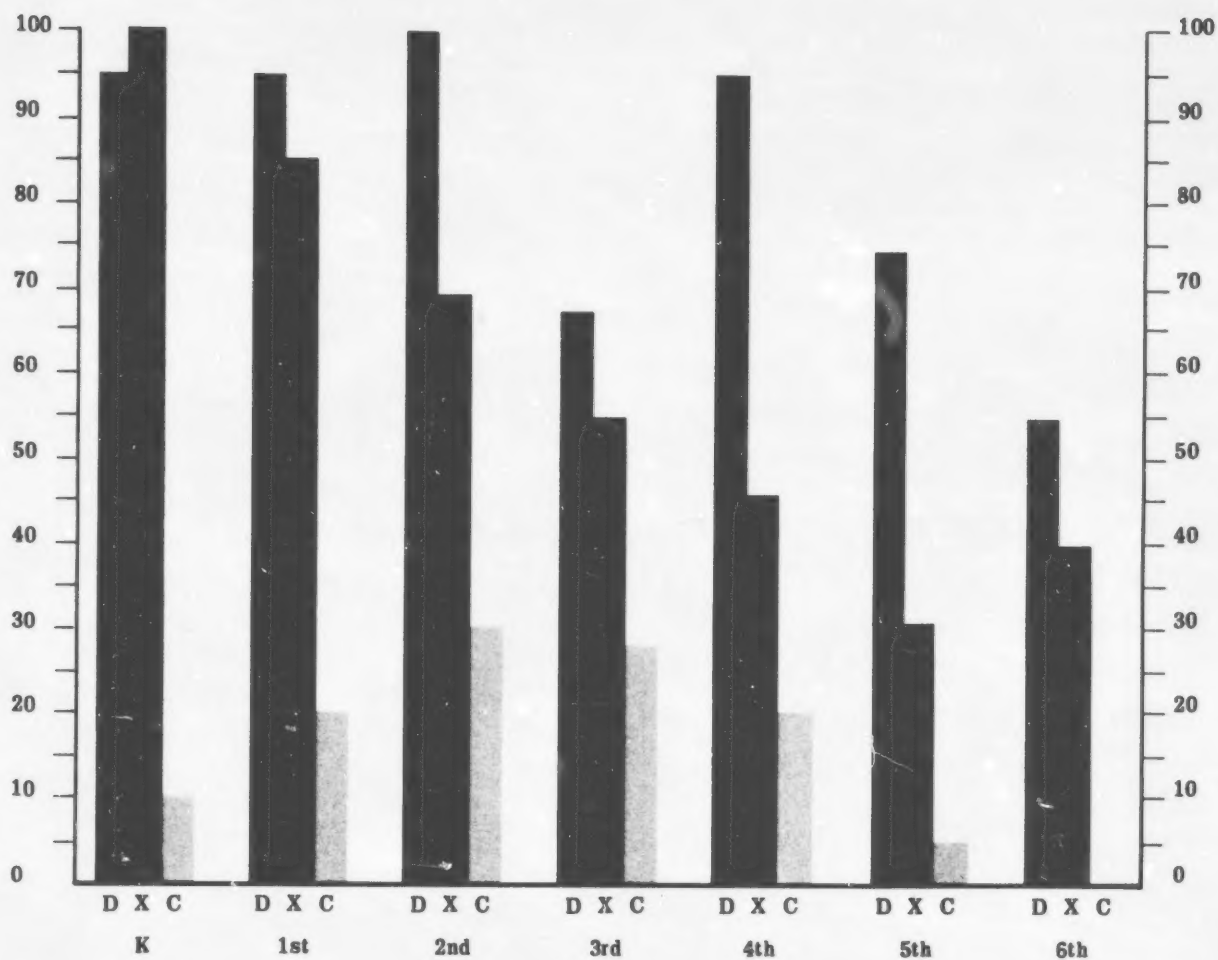
Seventy-seven teachers taught the units in Centreville and Coloma. The fact that differences in objective achievement were obtained over a large number of teachers rules out teacher effects as the probable cause of differences. Use of a comparable control group offers assurance that neither maturation nor selection of a superior treatment group are causal factors. Rather, it can be inferred that the differential objective achievement is attributable to the learning experiences provided by the CDCC project.

Evidence That Effects Are Educationally Meaningful

The educational significance of Project CDCC must be judged on: (1) the importance of its objectives, (2) the fact that success in achieving these objectives was demonstrated over a one-year period and even greater success was shown in four years, (3) the cost of implementing the program, and (4) the relationship of successful results in career education to other types of results. Regarding the last point, some educators have expressed fear that time devoted to career education will be subtracted from time spent on teaching basic academic skills, causing lower results on achievement tests. The question of whether Project CDCC's activities had a positive or negative effect on academic achievement can be partially answered, at least, by reviewing data from the Michigan



D developmental site
X experimental site
C control site



Percentage of CDCC Program Objectives attained by
80% or more of the students

Educational Assessment program collected prior to and following CDCC implementation. Results from the statewide assessment program are given in the appendix for Coloma (Fall '73 = pre-intervention; Fall '74 = post), and for Centreville and Mendon (Fall '75 = pre-intervention; Fall '76 = post).

These results show that the percentage of students achieving state assessment objectives increased by a much larger amount for Coloma fourth-grade students than for the state as a whole. The percentage increase in math was three times the statewide increase, while the reading increase was two and one-half times as great. In both subject areas Coloma students advanced from scores below the statewide average to scores above the state average. Coloma seventh-graders also showed greater gains in reading and math than those for the state as a whole.

After one year of exposure to the CDCC units, the same sort of result was obtained for Centreville fourth-grade students as had been found earlier at Coloma; i.e., the percentage of students achieving state assessment objectives increased by a larger amount (in math, by a much larger amount) for Centreville students than for the state as a whole. The Mendon students, who were not exposed to the units, showed a smaller achievement increase in math, although they achieved slightly more in reading. During the one-year interval from Fall '75 to Fall '76, there was a general decline in seventh-grade achievement throughout the state. After exposure to the CDCC units, Centreville students' scores declined by a smaller amount than statewide scores or those of Mendon students. As in the '73-74 results, a greater gain was found in reading. While statewide and Mendon scores declined, Centreville students increased their achievement, and Coloma students increased by an even larger amount (note that part of this cohort, which was in the sixth grade during the 1975-76 school year, had been exposed to CDCC materials for four years). The Coloma students advanced from ranking below the statewide reading average to above-average status; Centreville students maintained their above-average rank, while Mendon students dropped below the state average.

In summary, though these data do not prove that Project CDCC improves students' academic skills (because no attempt was made to match the schools on types of academic programs offered), they appear to lay to rest the fear that implementing career education activities will hurt academic achievement.

Evidence of Generalizability to Other Populations

Project CDCC has been awarded an ESEA Title IV-C grant within the state of Michigan to provide training and materials for successful program adoption/adap-

tation. It is currently being replicated at other locations throughout the state. Its positive results in Centreville as well as its successful operation in Coloma over a period of four years provide a strong indication that the project will be generalizable to other similar communities and school populations.

Favorable Review by Joint Dissemination Review Panel

The Joint Dissemination Review Panel (JDRP) was established by the Education Division of the Department of Health, Education, and Welfare in 1972. The joint U.S. Office of Education - National Institute of Education (NIE) Panel currently has 22 members, eleven from each agency, appointed respectively by the Commissioner of Education and the Director of NIE. The JDRP meets periodically to review the evidence of effectiveness submitted for a wide variety of federally supported educational products and practices, with effectiveness being the sole criterion for approval by the JDRP. It is charged with the responsibility of ensuring that educational interventions - projects, products, or practices - have been shown to have positive impacts on their recipients before they are disseminated with federal funds or endorsed by the Education Division.¹

In March 1978, the JDRP reviewed Project CDCC and approved it for nationwide dissemination. However, several caveats were recorded. The Panel suggested that statistical tests other than chi-square tests (such as Analysis of Variance or t-tests) might have dealt better with the instances in which treatment or comparison classes were comprised of small numbers of student. In addition, a statistical analysis of the differences between the reading scores of treatment and comparison school students would have determined whether or not those differences were at least partly accountable for the between-school differences in student performance on the unit tests. This information is provided so that those school districts interested in adopting Project CDCC have the advantage of the Panel's suggestions.

¹Tallmadge, G.K. The Joint Dissemination Review Panel: IDEABOOK. Washington, D.C.: NIE/DHEW, September 1977.

CONCLUSION

In an isolated, rural area in which students are not exposed to a wide range of occupations, Project CDCC developed and field tested specific career education units that combined a great deal of information on occupations with academic skill training. Not only were these units designed to increase students' awareness of occupational roles, but also to help them formulate realistic self concepts and develop their decision-making skills. The results of the 1975-76 evaluation of the units' impact on students indicated that Project CDCC developed units were largely effective in achieving their intended purposes. Thus, school districts with similar student needs and instructional goals have the advantage of being able to consider adapting Project CDCC to their local settings.

Appendix A

PROJECT CDCC TRAINING EVALUATION FORM

Each participant will:	Accomplishment				
	Low Degree				High Degree
1. increase his/her understanding of career development at the elementary level (self awareness and career awareness).	☐	☐	☐	☐	☐
2. increase his/her understanding of Project CDCC and its conceptual framework.	☐	☐	☐	☐	☐
3. understand the relationships and purposes of unit components -- i.e., goals, objectives, delivery system, and evaluation.	☐	☐	☐	☐	☐
4. be prepared for using the teaching techniques included in the unit delivery systems -- e.g., field investigations, role playing.	☐	☐	☐	☐	☐
5. be prepared in planning for unit implementation.	☐	☐	☐	☐	☐
6. become familiar with evaluation data collection procedures.	☐	☐	☐	☐	☐
7. On what parts of the workshop, if any, was too much time spent? _____					
8. On what parts of the workshop, if any, was too little time spent? _____					
9. On what parts of the workshop was the proper amount of time spent? _____					
10. Which topics, if any, needed more clarification? _____					
11. Were there any necessary topics or activities that you feel were omitted from the workshop? _____					
12. What parts of the workshop, in your opinion, were most meaningful? _____					
13. What parts of the workshop, in your opinion, were least meaningful? _____					
14. Please make any comments (positive, negative, or both) regarding your reactions to the workshop on the back of this sheet.					

Appendix B

OBJECTIVE-REFERENCED TEST RESULTS

Objective*	Pre	N	Post	% Achieving Obj.	Pre	X ²	Post	Objective*	Pre	N	Post	% Achieving Obj.	Pre	X ²	Post
1.12 Exp	71	67	15%	99%	.008	55.902**		10.11 Exp	44	44	91%	100%	.283	5.621**	
Con	29	28	14%	25%				Con	24	22	83%	82%			
1.22 Exp		66		100%		44.905**		10.21 Exp	44	44	45%	70%	4.445**	.417	
Con		28		32%				Con	24	22	17%	59%			
2.12 Exp		73		100%		18.903**		10.31 Exp	44	44	89%	95%	.483	.033	
Con		28		71%				Con	24	22	79%	91%			
2.22 Exp		73		100%		13.017**		10.41 Exp	44	44	25%	68%	5.432**	26.582**	
Con		28		79%				Con	24	24	0%	0%			
2.32 Exp		65		94%		18.639**		11.11 Exp	57	57	65%	95%	.921	.157	
Con		28		54%				Con	22	23	50%	96%			
2.42 Exp		70		100%		70.629**		11.21 Exp	57	56	60%	96%	.195	14.361**	
Con		28		18%				Con	22	23	68%	61%			
3.11 Exp	68	71	44%	97%	12.038**	72.77**		11.31 Exp	57	56	88%	95%	.000	.143	
Con	26	29	4%	10%				Con	22	23	91%	96%			
3.21 Exp	68	71	7%	94%	22.409**	25.504**		12.11 Exp	63	64	70%	84%	1.539	24.539**	
Con	26	29	54%	48%				Con	22	21	86%	24%			
4.11 Exp	62	68	75%	100%	5.351**	24.353**		12.21 Exp	63	64	48%	63%	.442	6.027**	
Con	27	27	48%	63%				Con	22	21	36%	29%			
4.21 Exp	64	68	66%	100%	.000	9.837**		12.31 Exp	60	54	40%	95%	1.413	2.623	
Con	27	27	63%	81%				Con	22	21	23%	81%			
5.11 Exp	80	77	9%	73%	.003	33.12**		12.41 Exp	60	64	25%	58%	.097	.005	
Con	26	28	8%	7%				Con	22	21	32%	62%			
5.23 Exp		77		100%		90.112**		13.13 Exp		56		82%		10.300**	
Con		28		7%				Con		25		44%			
5.32 Exp		77		100%		19.928**		13.23 Exp		56		80%		18.399**	
Con		28		71%				Con		25		28%			
6.11 Exp	76	77	50%	90%	.084	11.935**		13.32 Exp		52		100%		3.683	
Con	25	25	56%	56%				Con		25		88%			
6.21 Exp	76	77	62%	77%	1.098	.249		13.42 Exp		52		100%		3.683	
Con	25	25	76%	84%				Con		25		88%			
6.31 Exp	76	78	55%	97%	2.570	12.336**		13.52 Exp		52		100%		1.694	
Con	25	25	77%	72%				Con		25		92%			
6.41 Exp	76	78	84%	95%	1.123	1.790		13.62 Exp		52		98%		.437	
Con	25	25	72%	84%				Con		25		92%			
7.11 Exp	79	75	58%	92%	1.54	18.337**		14.11 Exp	65	66	8%	26%	.540	2.340	
Con	18	19	67%	47%				Con	20	20	0%	5%			
7.21 Exp	79	74	53%	82%	.006	5.875**		14.21 Exp	65	67	14%	55%	.056	1.776	
Con	18	19	56%	53%				Con	20	20	15%	35%			
7.31 Exp	79	75	61%	98%	.019	15.971**		14.31 Exp	65	66	34%	97%	1.787	55.249**	
Con	18	19	56%	68%				Con	20	20	15%	15%			
8.12 Exp		42		100%		7.439**		14.41 Exp	65	67	26%	54%	.035	1.908	
Con		22		77%				Con	20	21	25%	33%			
8.22 Exp		42		100%		7.439**		14.51 Exp	65	66	17%	38%	.944	.013	
Con		22		77%				Con	20	21	5%	33%			
8.32 Exp		42		100%		47.533**		15.11 Exp	54	53	48%	58%	.196	.322	
Con		22		14%				Con	21	19	57%	47%			
8.42 Exp		41		100%		5.195**		15.21 Exp	54	53	28%	36%	.145	1.963	
Con		22		82%				Con	20	19	20%	58%			
8.52 Exp		42		100%		16.751**		15.31 Exp	55	53	9%	30%	.761	.031	
Con		22		59%				Con	20	19	0%	32%			
9.11 Exp	51	59	51%	97%	.664	11.744**		16.11 Exp	64	61	30%	85%	.003	24.999**	
Con	20	24	55%	67%				Con	23	21	26%	24%			
9.21 Exp	51	59	25%	83%	2.625	20.180**		16.21 Exp	64	61	23%	74%	2.935	7.207**	
Con	20	24	5%	29%				Con	23	21	4%	38%			
9.31 Exp	51	59	65%	90%	7.578**	29.386**		16.31 Exp	64	61	9%	49%	.069	11.288**	
Con	20	24	24%	29%				Con	22	21	5%	5%			
9.41 Exp	51	59	41%	53%	.000	.097		16.41 Exp	64	62	56%	97%	4.403**	14.859**	
Con	20	24	45%	46%				Con	22	21	27%	62%			

Objective*	Pre	N	Post	% Achieving Obj.	Pre	Post	χ^2	Post	Objective*	Pre	N	Post	% Achieving Obj.	Pre	Post	χ^2	Post
16.52 Exp		61		98%			.316		21.51 Exp	54	53		22%	68%	3.511	26.248**	
Con		21		100%					Con	28	26		4%	4%			
17.13 Exp		45		96%			.044		22.11 Exp	66	70		58%	61%	2.571	7.314**	
Con		21		100%					Con	25	23		36%	26%			
17.23 Exp		45		93%			.333		22.21 Exp	66	70		17%	70%	.025	7.626**	
Con		21		100%					Con	28	23		18%	35%			
17.33 Exp		45		64%			4.405**		22.31 Exp	66	70		23%	33%	.424	1.329	
Con		21		33%					Con	28	23		14%	17%			
17.43 Exp		45		91%			21.273**		22.41 Exp	66	70		58%	70%	.058	10.736**	
Con		21		33%					Con	25	24		52%	29%			
18.11 Exp	60	63	48%	73%	.044		13.991**		22.51 Exp	66	70		30%	61%	.063	14.335**	
Con	19	21	42%	24%					Con	23	23		30%	13%			
18.21 Exp	60	63	38%	63%	3.365		13.365**		23.13 Exp	49	51		27%	49%	3.159	.025	
Con	19	21	21%	14%					Con	26	26		50%	54%			
18.31 Exp	59	63	71%	86%	.004		2.573		23.22 Exp	49	51		16%	27%	1.222	5.510**	
Con	19	21	68%	67%					Con	24	21		4%	0%			
18.41 Exp	59	63	59%	76%	1.096		1.944		24.11 Exp	67	65		4%	83%	.128	46.013**	
Con	19	21	42%	57%					Con	23	23		0%	0%			
18.51 Exp	59	63	42%	71%	.061		4.424**		24.21 Exp	67	65		4%	88%	.128	48.876**	
Con	19	21	42%	45%					Con	23	23		0%	4%			
18.61 Exp	59	63	8%	54%	.001		8.517**		24.33 Exp	67	65		19%	68%	.747	15.367**	
Con	19	21	5%	14%					Con	23	23		9%	17%			
18.71 Exp	60	63	55%	92%	1.060		2.420		24.42 Exp	67	65		15%	48%	.014	5.308**	
Con	19	21	68%	76%					Con	23	23		13%	17%			
19.11 Exp	50	52	26%	40%	.144		.471		25.12 Exp	66	63		15%	17%	.128	.199	
Con	24	24	33%	29%					Con	22	20		9%	10%			
19.21 Exp	50	52	52%	69%	7.353**		1.035		25.22 Exp	66	63		0%	70%	---	26.989*	
Con	24	24	88%	83%					Con	22	20		0%	0%			
19.31 Exp	50	52	52%	94%	6.827**		2.923		25.32 Exp	67	63		0%	84%	---	42.976*	
Con	23	24	87%	75%					Con	22	20		0%	0%			
19.41 Exp	50	52	74%	88%	2.076		1.229		25.42 Exp	64	63		31%	49%	.319	.037	
Con	24	23	54%	48%					Con	22	20		41%	50%			
20.12 Exp	70	69	77%	97%	4.457**		22.673**		26.11 Exp	62	66		47%	64%	.191	1.362	
Con	25	11	52%	45%					Con	21	19		38%	47%			
20.22 Exp		69		72%			4.111**		26.21 Exp	62	66		3%	17%	.122	.903	
Con		11		36%					Con	21	20		5%	5%			
20.32 Exp	70	68	53%	97%	6.785**		24.247**		26.31 Exp	62	66		2%	55%	.362	16.589*	
Con	25	28	20%	54%					Con	21	20		0%	0%			
20.42 Exp	70	68	24%	66%	.750		4.846**		26.41 Exp	62	65		42%	52%	11.941**	.549	
Con	25	28	36%	39%					Con	23	20		87%	65%			
21.11 Exp	54	53	48%	85%	4.466**		11.179**		26.51 Exp	62	65		56%	89%	19.803**	52.140*	
Con	28	26	21%	46%					Con	23	20		0%	0%			
21.21 Exp	54	53	89%	96%	.004		.040		26.61 Exp	65	65		15%	48%	2.311	5.516*	
Con	28	26	86%	92%					Con	21	20		0%	15%			
21.31 Exp	54	53	9%	55%	.240		11.762**		26.71 Exp	65	65		77%	86%	.047	3.201	
Con	28	26	4%	12%					Con	21	20		71%	65%			
21.41 Exp	54	53	0%	23%	---		5.756**		26.81 Exp	62	65		45%	57%	1.153	1.187	
Con	28	28	0%	0%					Con	21	18		62%	39%			
									26.91 Exp	62	66		5%	29%	.330	3.324	
									Con	21	19		5%	5%			

*Objectives are coded by unit; for example, Objective 1.12 is a performance objective for the first unit in the series, Me. Within that unit, it is the first objective for which there are data from both Centreville and Mendon. The last digit (2) indicates that it relates to the second major project objective--formulating a realistic self-concept. (One first-grade unit, Friendship, was omitted from the table, as no data were collected from Mendon for any of the objectives.)

**p < .05 if $\chi^2 \geq 3.841$, df 1

Note: Variation in N from pre- to posttest is primarily due to student attendance on the days tests were given; teachers were not required to give makeup tests.
Exp = Centreville students Con = Mendon students

Appendix C

State Assessment Results

Percentage of students attaining 75% or more of objectives

	4th Math		4th Reading		7th Math				7th Reading					
Fall	Coloma	State	Coloma	State	Coloma	State	Coloma	State	Coloma	State	Coloma	State		
73 (Pre)	63.6	67.0	35.2	38.5	39.2	43.1	41.2	50.0						
74(Post)	85.3	74.1	60.8	48.6	44.4	47.6	52.6	55.3						
	Ce	M	S	Ce	M	S	Ce	M	Co	S	Ce	M	Co	S
75 (Pre)	72.3	74.6	78.7	46.2	49.2	52.5	68.9	50.0	60.0	56.5	59.5	57.7	54.3	57.4
76(Post)	88.7	83.9	80.0	52.1	56.5	56.4	66.7	43.3	50.9	53.8	62.3	55.2	58.1	56.4

KEY: Ce = Centreville M = Mendon Co = Coloma S = State

Following is a summary of the gain between '73 and '74 testing for Coloma and the state as a whole:

4th Math		4th Reading		7th Math				7th Reading			
Coloma	State	Coloma	State	Coloma	State	Coloma	State	Coloma	State	Coloma	State
21.7%	7.1%	25.6%	10.1%	5.2%	4.5%	11.4%	5.3%				

Following is a summary of the gain between '75 and '76 testing for Centre-ville, Mendon, and Coloma (at the seventh-grade level only), compared to the state as a whole:

4th Math			4th Reading			7th Math				7th Reading			
Ce	M	S	Ce	M	S	Ce	M	Co	S	Ce	M	Co	S
16.4%	9.3%	1.3%	5.9%	7.3%	3.9%	-2.2%	-6.7%	-9.1%	-2.7%	2.8%	-2.5%	3.8%	-1.0%

PROJECT DISCOVERY

Southwest Iowa Learning Resources Center

Red Oak, Iowa

Susan L. McBain

American Institutes for Research

Dr. William C. Majure

Southwest Iowa Learning Resources Center

10 January 1979

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PROJECT OVERVIEW

- TITLE & LOCATION: Project Discovery
Southwest Iowa Learning Resources Center
401 Reed Street
Red Oak, Iowa 51566
- TYPE: Integrated system of activity packages
- PROJECT DIRECTOR: Roy Bastian
(712) 623-4913
- SETTING: Field test data on Project Discovery are from urban, suburban, and rural areas nationwide, with white, black, and Mexican-American populations and a wide range of ages represented. In addition, the materials have been used effectively in special education classrooms, rehabilitation settings, and CETA training and work experience programs.
- STAFF: The staff needed to implement Project Discovery depends on the approach taken. If a career exploration center is used, a coordinator or activity supervisor for each ten students using the package at any one time is desirable. If implementation is in classrooms or resource rooms, fewer people are needed. The total number depends on the number of packages adopted.
- GOAL: The goal of Project Discovery is to expose students to realistic, varied simulated work experience to increase their base of occupational experiences, increase their awareness of what they like to do, and increase their knowledge of what they have the abilities to do.
- EVALUATION DESIGN: The impact of Project Discovery upon students was tested in 1974-1976 by a comparison of pretest and posttest scores for experimental and control groups.
- MATERIALS: At this writing, the Project Discovery staff have available a total of 32 packages, with field testing underway on 36 others and work in progress on an additional 22. The materials are designed as a system which comprehensively covers the characteristics of work in American society, but it is possible to use only selected packages. The materials present realistic work activities, materials, and equipment to let students experience for themselves the characteristics of work. In addition, a Guidance Component has been developed to help students focus their learning and begin to establish patterns.
- COST: The cost for all 32 packages is approximately \$8,500. Packages can be purchased separately; the average cost is \$265. An inservice training session costs about \$600. If the system were used by 200 students annually for 5 years, the per pupil costs would be \$8.50 per year plus \$1.85 for consumables, for a total cost of \$10.35 per pupil per year.

PROJECT DESCRIPTION

"Hands-on career exploration": All career educators talk about it; lots of people claim they are doing it; but trying to find a definition that all would agree on is no easy task.

Project Discovery, however, is a set of exploration experiences that virtually everyone would agree is "hands-on." Project Discovery, developed by the Southwest Iowa Learning Resources Center, lets students learn about plumbing by fitting pipes; about accounting by preparing balance sheets; about meteorology by measuring air pressure, temperature, and cloud cover; and about an array of other kinds of work by actually doing the work tasks involved.

PROGRAM DEVELOPMENT

Development of Project Discovery began in 1971 with adaptation of a locally developed vocational assessment package called the "Talent Assessment Program." The staff of the Learning Resources Center (LRC) decided that the value of the program lay not so much in its assessment function as in the exposure it gave students to actual work tasks. They saw students discovering an interest in work tasks which they might never have experienced before.

In 1971, the LRC acquired funding from the Iowa Department of Public Instruction to begin development of a comprehensive set of work exploration packages for junior high school students which would cover the widest possible range of work activities. Eleven prototype packages were developed and were field tested in 1972, then revised on the basis of field test results. Concurrently, development of more packages began. This process of development, field testing, and more development is still going on today.

Program Philosophy and Approach

The developers of Project Discovery believe they have filled one of the largest gaps in the career education process: helping students to gather enough realistic information about enough kinds of work to identify their real interests. The Discovery staff states that:

Adolescents enter career consciousness via familial and social pressures, and an over-indulgence in television-induced fantasy. Realistic, valid career alternatives for future choice derive from knowing work--the types, styles, tasks, and conditions of work.

The primal stage of exploration, especially for junior high youngsters, is to expand the experience base. It is familiarity

gained through experience that constitutes the knowledge base required in subsequent exploration stages. The quality of this experiential knowledge, and hence of the subsequent process, depends upon two fundamental dimensions: variety and realism.

The occupational information approach satisfies the variety requirement, but is woefully short on realism. The work-study approach represents the opposite extreme and usually excludes the junior high student.

[Project Discovery provides] varied and realistic experiences. Students expand their experience base and increase their experiential knowledge in order to make career decisions.

As package development began, the scope of the total program was defined to include as many different types of work and work characteristics as possible. A total of 90 desired package topics has been identified, and the staff hopes to develop packages in all 90 areas. Currently, 32 packages are available and 36 others are being field tested, but additional development and field testing are constantly adding new packages to the total.

Packages have been developed within all 15 USOE occupational clusters. However, the package developers have tried to avoid limiting packages to covering one occupation. Instead, they have designed the system as a whole to cover a wide range of work characteristics. These work characteristics fit within the functions described within the Dictionary of Occupational Titles (DOT), which are as follows:

People

- Mentoring
- Negotiating
- Instructing
- Supervising
- Diverting
- Persuading
- Speaking-signaling
- Serving
- Taking instructions-helping

Data

- Synthesizing
- Coordinating
- Analyzing
- Compiling
- Computing
- Copying
- Comparing

Things

Setting up
Precision working
Operating-controlling
Driving-operating
Manipulating
Tending
Feeding-offbearing
Handling

However, package developers have tried to focus on much more specific work characteristics within the above categories. For example, both plumbers and carpenters make, assemble, and install custom made parts using large and small hand tools. This work characteristic spans more than one job, yet focuses on a specific, unified set of actions which are experienced in real work tasks.

The developers have tried to represent work characteristics as broadly as possible across the set of packages, and have cross-checked the system's comprehensiveness in various ways, including validation against a random selection of DOT job titles and in-depth task analysis on 20 packages.

Guidance Activities

While hands-on experience is the basis of Project Discovery, guidance in organizing and understanding the results of exploration is also felt by package developers to be vital. Therefore, a guidance component has also been developed, which includes an explanation of career development theory and a set of suggested guidance activities for use with students by coordinators or counselors.

Objectives

Project Discovery has three objectives:

- Students will gain a larger experience base.
- Students will gain awareness of which work activities interest them and which do not.
- Students will gain awareness of work activities for which they have ability and those for which they do not.

The approach to measurement of these objectives and the results will be discussed in the Evidence of Effectiveness section of this description.

The materials in Project Discovery packages and the Guidance Component can be used to accomplish these objectives, help students experience different work characteristics, and help them understand what these experiences mean for them.

Student Characteristics

Project Discovery has been used with a wide variety of students. The evaluation data presented later in this description were collected from seventh and eighth grade students in four different settings. Each of these populations included about ten percent special needs students, as defined by the Iowa Department of Public Instruction. The settings were:

- A rural blue-collar community near an urban area in the Southwest. Students in this community were about 80% white and 20% Mexican-American.
- A suburban area in the Midwest. Students were nearly 100% white.
- A small farming town in the Midwest. Students were nearly 100% white.
- A small industrial city in the Midwest. Students were nearly 100% white.

Other districts have also been tested with good results. Both were Midwestern urban areas: one had a 20% black and 80% white population, and one had approximately equal numbers of black, Mexican-American, and white students. In addition, CETA training and work experience programs, rehabilitation institutions, and special education programs have made successful use of Discovery packages. In fact, Discovery materials have proven to be so effective with special populations that a Special Edition of several packages has been developed for their use.

MATERIALS AND ACTIVITIES

The topics of Project Discovery packages are listed in Appendix A, grouped according to USOE occupational clusters and with availability indicated.

The comprehensive intent of the whole system of packages has already been indicated. However, it is possible to use selected Project Discovery packages independently. In the best of all possible worlds, each student would experience all packages and verify for himself or herself what was of interest and what was not. In the real world, few students will probably receive such exposure; but every package students complete gives them another bit of realistic knowledge of the world of work.

Discovery Packages

Each package has an introduction and a number of activities (from three to sixteen). The average package's activities occupy 3 to 4 hours. Experience has shown that 1-1/2 to 2 hours per day on a package's activities offer maximum value to the student; that is, an average package should be completed over two to three days. Most packages are designed for use by one student, though some, especially those involving people as part of the work task, involve two students.

Packages are written at the sixth grade reading level to be usable by most junior high school audiences. (The Special Edition is written at the second-fourth grade level.) Each package contains Instructor's Notes, activities directions for students, and almost all materials needed for completion of the package. Adopters are asked to provide only equipment that would be impractical to include in the package. All such instances are clearly noted in the materials lists.

A typical package, Grocery Clerking, contains the following items:

Grocery Clerking

Instructor's notes	Butter carton
Student instructions	Ice cream carton
Paper towels	Cases of sealed cans
Masking tape	Markers
Display sign material	Frozen juice cans
Price marking ink	Frozen food packages
Ink remover	Liquid cleaner bottle
Price marker	Loaf of bread (simulated)
Paper bags (4 sizes)	Canned goods
Freezer bag	Jelly jar
Milk carton	Six-pack of carbonated drink
Whipping cream carton	Vegetable or fruit
Dip container	Meat packages
Cottage cheese container	Can of oil
Egg carton	Box of tissues

Items to be provided by the adopter are:

Adding machines
Bag of potatoes
Sales tax chart - your state

All student instructions are presented in a clearly worded, attractive, cartoon-like format. A sample is found in Appendix B. Several presentation styles are used; for example, instructions may consist of one pamphlet for each activity, a flip chart for the entire package, or an oversize pad for display on an easel. The style of presentation is adapted to the package. For example, the Wall Coverings package has large, easy-to-read lettering and a minimum of pages to turn (or smear with wallpaper glue). Instructions for almost all packages are printed on plastic and are practically indestructible.

The activities within a package proceed from simpler to more complex so that students can achieve success right at the start of a package. The activities in the Masonry package are listed below as an example. Appendix C shows other examples.

Masonry

Mixing premixed concrete and conducting a slump test
Pouring and finishing a patio block
Tying reinforcement rods
Laying a simple, straight concrete block wall
Laying a corner section in block
Laying a corner section in brick

The Guidance Component

The Guidance Component consists of a Guidance Manual, a set of Instructor's Notes for the Manual, a student record keeping system, and a 10-minute 16 mm film. The film is an introduction for students to the philosophy, approaches, and content of Project Discovery. These guidance materials assist the teacher/counselor in turning the Project Discovery packages into true career exploration rather than isolated classroom work activities. The inclusion of this Guidance Component in the exploration system emphasizes program developers' feelings that some form of guidance and counseling activities is necessary to bring about meaningful exploration.

The Guidance Manual explains the theoretical basis of Project Discovery in some detail. Basically, it defines the task of guidance for career development as including five areas:

- facilitating career awareness
- facilitating self awareness
- helping students generate career alternatives
- selecting from among alternatives
- deciding how to reach goals

The last three areas taken together constitute decision making skill, which is generally regarded as one major thread of career education (career awareness and self awareness being the other two).

Four developmental stages of career development are identified: career awareness, career exploration, career crystallization, and career commitment. The career exploration stage, into which Project Discovery fits, is characterized as that in which "activity centers around striving to understand *possibilities*. Increased knowledge about self and the world is sought in order to express future situations as *alternatives*." Typical thoughts, actions, and attitudes

which characterize this stage are discussed, as well as those which characterize earlier and later stages (for comparison purposes). One of the strongest convictions of Discovery's developers is that the career exploration stage does not automatically occur at a particular chronological age, although for most students it occurs around the junior high school years. This is why Discovery has proved useful in CETA training programs, with high school and post-high school ages, and even with adults.

At whatever age people undertake Discovery, they are likely to need assistance in focusing the meaning of their experiences. Therefore, the bulk of the Guidance Manual consists of guidance activities to be used with students. Activities include discussions, games, fantasizing, and information analysis and presentation. An example activity is shown below.

Career Exploration Exercise

Title: "I Learned" Statements

Time Allotted: 30 minutes

- Purposes:
- A. to provide student feedback about the activity just completed.
 - B. to clarify and reinforce what the student has learned.
 - C. to crystallize new learnings which many students might not have realized were taking place.
 - D. to provide a summary or wind-up for an activity.

Activities:

1. Leader provides chart with the following (or similar) sentence stems:

I learned that I...	I realized that I...
I re-learned that I...	I was surprised that I...
I noticed that I...	I was pleased that I...
I discovered that I...	I was displeased that I...
2. Right after a Project Discovery learning package or Career Exploration Exercise, leader asks students to think for a minute about what they have just learned or re-learned about themselves and/or worker tasks. Then they are to use any one of the sentence stems to share with the group one or more of their feelings. Students are not called on, but volunteer to speak whenever they are comfortable about it.
3. Alternative approaches include having students write down a list of "I learned" statements and think about them or record in their personal records. Or the first time around, have students write down statements before sharing.

Motivators: Desire to share with peers (when trust is high).

Materials: Chart and paper and pencils.

Career Exploration Notes for leaders: Don't allow for discussion to interrupt the free flow of "I learned" statements; it tends to destroy the mood and intensity of the activity. Statements should be kept short and to the point. Students should make their statements but not attempt to explain or defend them. Try to help students focus on personal, immediate learnings rather than on general, intellectualized learnings. Reassure students that there are no right answers.

One of the Manual's most important elements is the Student Exploration Experience Chart. This provides a format for recording packages the student has completed and how she or he responded to package activities. A student who completes several packages should begin to reveal response patterns that can form a basis for guidance activities.

Implementation Approaches

Project Discovery can be implemented in a number of ways. It is completely transportable, and the packages can be used independently. Package developers have identified some typical types of implementation:

Resource Room approach. This approach can serve a small number of students well, usually those assigned to the resource room for additional help. The resource room teacher can often help students have a positive experience with the packages. On the other hand, fullest use of the packages cannot usually be made in limited space and with a single type of student. This approach is useful for adopters wishing to start a small program that can be built upon each year.

Career Exploration Center approach. Such centers are usually larger than resource rooms and can accommodate more students and more packages. Career information sources may also be made available in career exploration centers. Centers are adaptable to drop-in and individualized learning, concepts which package developers strongly endorse. Disadvantages of this approach are that it may involve extra staff, some duplication of equipment and materials already in the building, and loss of space for other purposes. In addition, space and quiet for guidance activities may be hard to locate.

Classroom Infusion approach. This approach usually divides packages among a number of classrooms, cutting down on space needs and facilitating many students working with one or two packages. On the other hand, the

concentrated experience of package exploration tends to be diluted by other activities. Package developers feel that, while the infusion approach may be well suited to other career development stages, the career exploration stage is best served by comprehensive and concentrated exploration experiences.

Mobile Unit approach. This approach serves spread-out rural populations effectively. It tends to be costly and offer only limited time for package exploration.

Instructor's Notes

The Instructor's Notes for each package offer both theoretical and practical information on package implementation. Package activities and all materials are listed, plus materials or equipment which the instructor must provide. Commonalities are listed next; these are the few or many occupations which fit the work characteristics of the package. Specific suggestions for implementing each activity are then given. The components of student learning are listed: the required knowledge, manipulative skills, and conceptual skills; the knowledge and skills to be acquired; and vocabulary for each activity.

Next, possible relationships of the package with other curricular materials are discussed. For instance, the plumbing package is relevant to math, science, and industrial arts courses. Relationships of the package to other packages are also explored. Suggestions for further activities which interested students might pursue are given. Finally, diagrams and instructions for setting up and operating package materials are presented, if necessary.

Student Evaluation

Tests are not a necessary part of Project Discovery, since there are no right answers in career interests. Each set of Instructor's Notes, however, includes "checkpoints," or criteria for helping the student evaluate how well she or he performed each activity. For example, the checkpoint for the first plumbing activity reads as follows:

Threaded end of pipe, after being screwed tightly into fittings, should leave only 3 to 4 threads or less showing. Burr left from the pipe cutter in the end of the pipe should be completely removed but the pipe should not be reamed to the point of reducing wall thickness.

For adopters who need to evaluate the projects they implement, an Evaluation Package has been prepared which includes the test used to validate this project.

The tests are described in the Evidence of Effectiveness section of this document. Hand-scoring keys are available, or Project Discovery staff can machine-score the tests if desired. Instruction in use of the tests is provided during inservice training if adopters request it.

Physical Facilities

The possible physical settings for package exploration have already been discussed. In general, there are no particular physical requirements for package use except for those commonly available, such as sources of electric power, clean-up facilities, and so forth. Space requirements for packages vary; an average classroom, normally equipped for an average size class, might accommodate two to five packages, depending on package activities. A larger facility such as a career exploration center could of course accommodate more.

PARENT AND COMMUNITY INVOLVEMENT

The use of a Project Discovery package requires some supervision by a person who has worked through the package. Often these people are teachers or other school personnel. However, interested parents and community members can serve in this capacity if legal and procedural restrictions permit.

Perhaps a more important role for parents and community members is that of resource person. The further activities suggested for students in the Instructor's Notes often include contact with persons in one of the fields relevant to the package. Field trips to work sites of interest and presentations by knowledgeable speakers can help to extend or reinforce student interests identified during package exploration. It is advisable to limit these activities only to interested students, rather than scheduling whole classes for field trips or special presentations; motivation will be higher on all sides and chances for a successful and satisfying activity will be greater.

STAFFING AND MANAGEMENT

Staff Requirements

The first requirement for use of Project Discovery packages is that supervisors of package activities and guidance activities be thoroughly familiar with the package. The best way to achieve this familiarity is by working through package activities, and this is strongly suggested for each package the teacher or aide oversees.

Staff Types and Levels

As a general rule, one person can supervise about ten students working on package activities. An aide is helpful, though not essential. Guidance activities can be conducted either by the supervising staff or by counselors, depending on the local situation.

The several approaches to implementing packages allow for flexibility in staffing types and levels. If packages are set up in a resource room, only five or six packages at most can usually be accommodated and one teacher or aide can supervise the whole group. Often this person can lead guidance activities as well. A counselor may also fill this role, and in addition can provide further career information, opportunities for entry into work-study programs, and other counseling help.

If the career exploration center approach is used, one staff member will be needed for each ten students, with assistance from aides as available. In addition, it may prove most practical to create a full- or part-time coordinator position for the center. The guidance activities can involve either the teaching or counseling staff or both, as described above.

The classroom infusion approach may require more than one teacher, depending on the number of packages set up per room. This approach fits very well into a team teaching situation, where students may rotate among a number of packages over several weeks or a semester or more. Aides are especially valuable in helping classroom teachers keep activities flowing smoothly and keep the classroom organized. The role of the counseling staff may include leading guidance activities and providing career information and opportunities.

The mobile unit approach practically requires that one person act both as package supervisor and leader of guidance activities. A mobile unit will usually admit no more than ten students at one time, so that one person can supervise all package activities.

No unusual amounts of administrative time are called for by implementation of Project Discovery. Some consumable supplies must be reordered on an irregular basis, requiring a small amount of support staff involvement.

Management Strategies

As mentioned earlier, it is important that those implementing Project Discovery packages have worked through the packages they will supervise. In addition, they should be thoroughly familiar with package purposes, content, and requirements as discussed in the Instructor's Notes. The details of equipment

operation and the purposes of specific activities cannot be conveyed to students effectively unless package supervisors are thoroughly familiar with the packages.

In the same fashion, staff members who will be leading guidance activities should be well acquainted with the packages. In this case, exposure to all packages is probably less essential, but exploration of two to four packages is strongly recommended. And of course the person leading guidance activities needs to thoroughly understand the Guidance Component and the purposes and methods of the included student activities.

The best strategy for helping students learn about the world of work as a whole is to assign them all Project Discovery packages. If this is not possible, students should rank packages in the order they wish to work on them. They may then work on several of their top choices; but in addition, it is recommended that they be asked to work on one package near the bottom of their lists. Many students prefer to work only on familiar activities and never experiment with those which are strange to them. This approach will help them to experience new activities and may broaden their horizons.

Student rankings of their choices will also help the staff assign packages; in the event that popular packages cannot be explored by all students who wish to do so, second or third choices may be assigned.

The amount of administrative effort required to install and manage Project Discovery may vary according to the number of packages adopted and the implementation approach utilized. Implementing the entire system will require both more student time for package use and more staff time in coordinating student assignments to packages and package sites. Ordinarily the teachers, counselors, or coordinators involved can handle the necessary record keeping, making use of the Student Exploration Experience Chart. In some situations, however, such as a team teaching effort involving several teachers, a central records system may prove more efficient.

It is not necessary that the Guidance Component be implemented at any specific points in the exploration process; but its activities are most effective if spread across the exploration period, not completed too quickly nor left until the last minute. As discussed above, guidance activities may be conducted by counseling staff or by teaching staff with some guidance experience. Students need not have completed the same packages or the same number of packages for guidance activities to be effective.

Implementation of both package activities and guidance activities is described in much more detail in the materials themselves and in the inservice training sessions described next.

Inservice Training

The developers of Project Discovery have prepared a two-day inservice workshop designed to help adopters understand the entire system and also plan its implementation in their settings.

The workshop begins with slides and a film on the development of Project Discovery and on the concept of career exploration on which it is based. The Guidance Component is introduced next, followed by a sample guidance activity making use of workshop learning to that point. The afternoon is devoted to exploration of an actual package, one which the participant has ranked as of high interest. Further guidance activities are used to introduce and summarize the exploration experience.

On the morning of the second day, a second package and associated guidance activities are carried out; but this time participants explore packages which were ranked as of low interest for them. The purpose of this, just as for students, is to broaden the participants' horizons and allow them to confirm or refute their ideas of what they actually like to do.

After lunch the participants devote the remainder of the workshop to developing local implementation plans. Project Discovery staff offer assistance in planning the physical facilities, staff assignments, scheduling of students or clients, and resupply and inventory activities for local sites. The staff has also specified a series of installation objectives and provided checklists to help participants plan a smooth implementation of Project Discovery packages.

The workshop is appropriate for all those who will be supervising package activities or guidance activities. It would also be useful for administrators, aides, and any other persons who will be helping students learn about the world of work.

COSTS

The cost for the 32 packages available as of October 1978 is \$8,500. Individual prices for most packages range from \$45 to \$450. (An exception is the machine trades package, which includes lathes and other equipment and costs about \$1,075.) The Guidance Component is included without charge in all orders over \$3,000; otherwise, its cost is \$160. Costs for an inservice training session, assuming typical expenses for travel, lodging, etc., are about \$600. If fixed costs of all packages and training are amortized over a five-year period for 200 students, per pupil costs would be as follows:

Annual Amortization	\$1440
Annual Student Population	200
Per Pupil Amortization	\$8.50
Per Pupil Consumables	\$1.85
Total Per Pupil Costs	\$10.35

Prices for packages purchased individually may be obtained from the Learning Resource Center.

EVIDENCE OF EFFECTIVENESS

Design

An experimental design utilizing pretesting and posttesting of experimental and control groups was effected. Over a period of two academic years there were six replications of the experimental treatment with three control groups. Replication durations varied and are shown in Table 1.

Pre-post testing involved three scales -- HAVE (done), ENJOY (doing), and CAN (do). Analysis of demographic/achievement data indicated no experimental-control differences. Analysis of pre-post scale scores was threefold: (1) pre-program equivalence of experimental and control groups, (2) post-program differences between experimental and control groups (in cases of pre-program equivalence), and (3) experimental-control differences in scale score change.

Information on samples is shown in Table 1.

Table 1
Description of Samples

<u>Group</u>	<u>Grade</u>	<u>Year</u>	<u>N</u>	<u>Status</u>	<u>Weeks in Program</u>
1	8	1974-75	52	Experimental	9
2	8	1975-76	15	Experimental	9
3	8	1975-76	17	Experimental	9
4	8	1974-75	53	Experimental	18
5	8	1974-75	51	Control	
6	8	1974-75	52	Control	
7	7	1975-76	39	Experimental	18
8	7	1975-76	41	Control	
9	7,8	1975-76	48	Experimental	12

Instrumentation

The instrument, Majure Assessment of Discovery Exploration (MADE), is composed of a pool of 28 work activities drawn from the larger pool of tasks in Project Discovery packages. One task was randomly selected from each package then in use. Tasks having vague or difficult descriptions were rejected. Instrument pretesting identified ambiguous and generally unknown terms for rewording. The work activities that compose the instrument are representative of those presented by the program, which, in turn, is representative of the world of work.

The instrument includes three questions for each work task: HAVE you ever DONE...? (Yes; No; Not sure, something like it, etc.), Do you ENJOY DOING...? (Yes; No; Neutral, don't know, etc.), CAN you DO...? (Yes; No; Neutral; don't know; etc.). Scoring of ENJOY and CAN scales is based on awareness. Both "Yes" and "No" imply awareness. Uncertainty implies nonawareness. Thus MADE deals with awareness of interest/disinterest (ENJOY scale) and abilities/inabilities (CAN scale) with respect to occupational tasks. The instrument also deals with occupational task experience; i.e., whether or not the various tasks have been experienced (HAVE scale).

Instrument pretesting revealed the need to develop a scoring system that rejects the influence of guessing about nonexperienced tasks. Thus scores for awareness of enjoyment and ability discount response data for untried tasks.

Since each scale contains only 28 items, the split half method was not used to determine reliability. (Results are too susceptible to the particular split made.) Rather, following the advice of Julian Stanley "...to make use of all the variance and covariance information about consistency of performance from item to item...", Cronbach's alpha was computed for each scale. This statistic is a function of the ratio of the sum of covariances (each item to each other item) to total scale variance. Cronbach's alphas (reliability coefficients) obtained from 150 students are as shown in Table 2.

Cronbach's alpha, while superior to former methods of homogeneity determination, shares one limitation with them. It does not address stability. Needless to say, the pre-post scores of experimental students cannot be used to examine stability. Such scores are expected to change. However, pre-post scores of the approximately 95 control students were examined for stability over a 16-week period. Results are also shown in Table 2.

Table 2
Reliability of the MADE

<u>Scale</u>	<u>Cronbach alpha (Homogeneity)</u>	<u>Test-retest correlations (Stability)</u>
Have Done	.77	.72
Enjoy Doing	.76	.68
Can Do	.76	.74

Results

To test for experimental-control equivalence, pre-program data were analyzed via analysis of variance. Table 3A depicts the group mean scores on all three scales. Table 3B depicts details and results of analysis (the F statistic). It is seen that there were significant group differences on the ENJOY DOING scale. Since the concern was equivalence or difference between experimentals and controls, the Scheffe method was used for a *posteriori* comparison of experimentals and controls. Comparison of regularly computed F to Scheffe F' (at .05 significance level) indicated no experimental-control differences on the ENJOY DOING scale. Table 3C depicts details. Thus experimentals and controls were not significantly different on any pre-program scale score.

Table 3A
Pre-Treatment Mean Scores

<u>Group</u>	<u>N</u>	<u>Have Done</u>	<u>Enjoy Doing</u>	<u>Can Do</u>
1	52	8.5	24.5	23.4
2	15	9.2	24.1	26.9
3	17	8.8	22.3	27.8
4	53	7.3	19.9	20.5
5	51	9.7	27.0	26.2
6	52	8.6	24.7	24.3
7	39	9.5	26.9	26.9
8	41	8.0	22.1	22.4
9	48	8.5	24.2	24.2
Total	368	8.6	23.9	24.2

Table 3B

F Test: Pretest Scores

	<u>Have Done</u>	<u>Enjoy Doing</u>	<u>Can Do</u>
SS _b	192.6	1718.0	1382.6
SS _w	4629.7	33332.1	34914.9
df _b	8	8	8
df _w	344	318	311
F	1.79	2.05	1.54
Significance	NS	< .05	NS

Table 3C

Scheffe Experimental-Control Comparison on ENJOY DOING Pretest Scores

$$\bar{X}_{\text{exp}} = 23.3$$

$$\bar{X}_{\text{con}} = 24.7$$

$$N_{\text{exp}} = 192$$

$$N_{\text{con}} = 135$$

$$\text{Variance (within)} = 104.8$$

$$F = (\bar{X}_1 - \bar{X}_2)^2 / (S_w^2/N_1 + S_w^2/N_2) = 1.5$$

$$F_{.05} = 1.97 \text{ (df = 8, 318)}$$

$$F'_{.05} = (K-1)F_{.05} = 15.76$$

In like manner post-program scores were analyzed. Table 4A depicts group mean scores. Table 4B, ANOVA details, indicates significant group differences on all three scales. Again since the concern relates to experimental-control differences, the Scheffe method was used for *a posteriori* comparisons. Table 4C shows that the normally computed F is greater than the Scheffe F' (at .05 significance level) on all three scales.

The net effect of Tables 3A, B, C, and 4A, B, C is to demonstrate pre-program equivalence and post-program differences between experimentals and controls on all scales. Table 5 summarizes.

Table 4A
Post-Treatment Mean Scores.

<u>Group</u>	<u>N</u>	<u>Have Done</u>	<u>Enjoy Doing</u>	<u>Can Do</u>
1	52	10.2	27.5	28.7
2	15	9.9	30.7	28.6
3	17	10.8	28.3	33.2
4	53	8.4	23.0	23.7
5	51	7.8	22.4	21.5
6	52	7.2	20.2	22.3
7	39	14.2	40.5	41.1
8	41	9.0	24.8	25.4
9	48	8.7	24.6	25.6
Total	368	9.1	25.4	26.4

Table 4B
F Test: Posttest Scores

	<u>Have Done</u>	<u>Enjoy Doing</u>	<u>Can Do</u>
SS _b	1028.6	7847.7	8346.5
SS _w	5060.3	35167.0	40551.1
df _b	8	8	8
df _w	325	304	298
F	8.26	8.48	7.67
Significance	< .01	< .01	< .01

Table 4C
Scheffe Experimental-Control Posttest Comparisons

	<u>Have Done</u>	<u>Enjoy Doing</u>	<u>Can Do</u>
$\bar{X}_{exp}$	9.9	27.5	28.7
$\bar{X}_{con}$	7.9	22.3	23.0
N_{exp}	196	185	183
N_{con}	138	128	124
S_w^2	15.57	115.7	136.1
F	20.8	17.7	17.6
$F'_{.05}$	15.76	15.76	15.76

Table 5
Summary of Mean Scores

<u>Group</u>	<u>N</u>	<u>Have Done</u>		<u>Enjoy Doing</u>		<u>Can Do</u>	
		<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>	<u>Pre</u>	<u>Post</u>
1	52	8.5	10.2	24.5	27.5	23.4	28.7
2	15	9.2	9.9	24.1	30.7	26.9	28.6
3	17	8.8	10.8	22.3	28.3	27.8	33.2
4	53	7.3	8.4	19.9	23.0	20.5	23.7
5	51	9.7	7.8	27.0	22.4	26.2	21.5
6	52	8.6	7.2	24.7	20.2	24.3	22.3
7	39	9.5	14.2	26.9	40.5	26.9	41.1
8	41	8.0	9.0	22.1	24.8	22.4	25.4
9	48	8.5	8.7	24.2	24.6	24.2	25.6
Exp.	224	8.5	9.9	23.3	27.5	24.1	28.7
Con.	144	8.8	7.9	24.7	22.3	24.4	23.0
Total	368	8.6	9.1	23.9	25.4	24.2	26.4

Since two schools provided both experimental and control groups, there were grounds for *a priori* comparisons of experimentals and controls within each of those schools. The results of t-tests are shown in Tables 6 and 7.

Table 5 shows post scores to be greater for experimentals than for controls on all scales. It can be seen in Table 6 that the experimental group (4) had

significantly lower pre-program scores than did controls (groups 5 and 6). Analysis was performed on pre to post change scores. Table 6 indicates change scores to be significantly greater for experimentals than for controls.

Table 6
t-tests, Group 4 (exp) vs. Groups 5 & 6 (con)

	Pretest			Pretest-Posttest Change		
	Have	Enjoy	Can	Have	Enjoy	Can
$\bar{X}_{exp}$	7.3	19.9	20.5	1.7	3.0	2.8
$\bar{X}_{con}$	9.1	25.8	25.3	-3.3	-4.3	-3.3
N_{exp}	53	52	44	48	45	38
N_{con}	103	96	92	93	81	73
SS_{exp}	426.9	5758.9	2944.6	581.4	4313.3	3068.0
SS_{con}	1666.4	12040.9	11888.6	746.4	5099.3	4182.9
t	-2.89	-3.10	-2.49	9.08	4.51	2.29
df	154	146	134	139	124	109
Significance	< .01	< .01	< .05	< .001	< .001	< .05

Table 7 shows group 7 (experimental) and group 8 (control) to be equivalent on pre scores and significantly different on post scores. Both within school comparisons support the overall results.

Table 7
t-tests, Group 7 (exp) vs. Group 8 (con)

	Pretest			Posttest		
	Have	Enjoy	Can	Have	Enjoy	Can
$\bar{X}_{exp}$	9.5	26.9	26.9	14.2	40.5	41.1
$\bar{X}_{con}$	8.0	22.1	22.4	9.0	24.8	25.4
N_{exp}	24	24	23	24	23	24
N_{con}	41	39	40	40	38	39
SS_{exp}	404.3	3329.7	3470.1	265.0	2607.7	2648.0
SS_{con}	485.6	3603.5	3598.1	546.4	3831.4	4153.8
t	1.55	1.74	1.60	5.56	5.69	5.73
df	63	61	61	62	59	61
Significance	NS	NS	NS	< .001	< .001	< .001

Educational Significance

Career maturity requires that decisions be based upon varied and realistic experiences. Project Discovery provides such experiences. It is transportable, operational, and flexible. It can be installed in a variety of school, staff, and facility situations.

Project Discovery is effective for junior high populations. It is significantly effective on all three dimensions tested. It increases experience base. It increases awareness of work in which there is satisfaction. It increases awareness of work for which there is ability.

Favorable Review by Joint Dissemination Review Panel

The Joint Dissemination Review Panel (JDRP) was established by the Education Division of the Department of Health, Education, and Welfare in 1972. The joint U.S. Office of Education/National Institute of Education (OE/NIE) Panel currently has 22 members, eleven from each agency, appointed respectively by the Commissioner of Education and the Director of NIE. The JDRP meets periodically to review the evidence of effectiveness submitted for a wide variety of federally-supported educational products and practices, with effectiveness being the sole criterion for approval by the JDRP. It is charged with the responsibility of ensuring that educational interventions -- projects, products, or practices -- have been shown to have positive impacts on their recipients before they are disseminated with federal funds or endorsed by the Education Division.¹

In March 1978, the JDRP reviewed Project Discovery and approved it for nationwide dissemination.

CONCLUSION

Project Discovery is designed to bridge the gap between classroom study of careers (varied but not realistic) and work experience (realistic but usually limited to few options). Project Discovery allows students to discover for themselves, perhaps for the first time, the patterns of work characteristics which they enjoy and can do well. The materials developed by Project Discovery have been proven to be a valuable tool for "hands-on exploration" of careers, at whatever age this process begins.

¹ Tallmadge, G.K. The Joint Dissemination Review Panel: IDEABOOK. Washington, D.C.: NIE/DHEW, September 1977.

Appendix A

A total of 90 Project Discovery packages is planned when the system is fully developed. At this writing, 32 packages have been developed and field tested and are available for purchase. Thirty-six others are undergoing field testing and will be available soon, and the rest are under development. The package titles and availability are listed below, grouped according to the 15 U.S.O.E. occupational clusters.

<u>Package Cluster and Title</u>	<u>Available</u>	<u>Prototype Form in Field Testing</u>	<u>Under Development</u>
Agri-business and Natural Resource Occupations			
Crop Production		x	
Farm Management			x
Geological Careers			x
Greenhouse Work	x		
Livestock Production			x
Seed and Fertilizer Mktg.			x
Business and Office Occupations			
Accounting and Bookkeeping	x		
Computers		x	
Filing	x		
Insurance Occupations		x	
Mail Handling	x		
Management			x
Shorthand	x		
Small Business Machines			x
Word Processing		x	
Communication and Media Occupations			
Advertising and Editorial Design	x		
Audiovisual Technology			x
Broadcast Journalism			x
News Journalism		x	
Photography		x	

<u>Package Cluster and Title</u>	<u>Available</u>	<u>Prototype Form in Field Testing</u>	<u>Under Development</u>
Photo Lab Technology		x	
Printing Processes	x		
So Ya Wanna Be An Artist	x		
Telephone Installation		x	
Telephone Usage		x	
Construction Occupations			
Air Conditioning		x	
Carpentry		x	
Electricity	x		
Heating		x	
Heavy Equipment Operation			x
Masonry	x		
Plumbing	x		
Surveying		x	
Wall Covering	x		
Consumer and Homemaking Related Occupations			
Child Care			x
Cleaning Maintenance	x		
Dietetics		x	
Fabric Care		x	
Production Sewing		x	
Quantity Food Preparation		x	
Textile and Clothing Design			x
Upholstery		x	
Waiter/Waitress	x		
Interior Design			x
Environmental Occupations			
Conservation		x	
Energy Careers			x
Environmental Monitoring		x	
Landscape Design			x
Meteorology	-286-	x	

<u>Package Cluster and Title</u>	<u>Available</u>	<u>Prototype Form in Field Testing</u>	<u>Under Development</u>
Fine Arts and Humanities Occupations			
Show Business		x	
Social Sciences Career		x	
Writing Careers		x	
Health Occupations			
Bio. Sci. and Technology	x		
Dental Care	x		
Medical Emergency Service	x		
Medical Patient Care	x		
Medical Records	x		
Preliminary Health Exploration	x		
Hospitality and Recreation Occupations			
Alternate Life Styles			x
Parks and Recreational Planning		x	
Sports Careers			x
Travel and Tour Planning		x	
Manufacturing Occupations			
Design as a Function			x
Drafting		x	
Electronics		x	
Machine Trades	x		
Mass Production		x	
Marine Science Occupations			
Commercial Fishing			x
Marine Biology			x
Marketing and Distribution Occupations			
Auto Parts Merchandising		x	
Banking and Credit Occupations	x		

<u>Package Cluster and Title</u>	<u>Available</u>	<u>Prototype Form in Field Testing</u>	<u>Under Development</u>
Grocery Clerking	x		
Materials Handling		x	
Real Estate		x	
Retailing		x	
Sales Representative	x		
Small Appliance Repair		x	
Small Instrument Repair			x
Personal Services Occupations			
Animal Care		x	
Hair Care and Styling	x		
Skin and Nail Care	x		
The Art of Small Talk			x
Public Service Occupations			
Fire Fighting		x	
I Believe...Religious Services	x		
Law Enforcement	x		
Working with Senior Citizens	x		
Transportation Occupations			
Auto Body Repair	x		
Flight Occupations		x	
Small Engine Repair	x		
Truckin'	x		

CAREER EXPLORATION PACKAGE IN

Appendix B

Student Materials:
"Plumbing"

All materials are
printed in color
on plastic sheets.



WRITTEN BY DEAN CLARK

ILLUSTRATED BY AL NELSON

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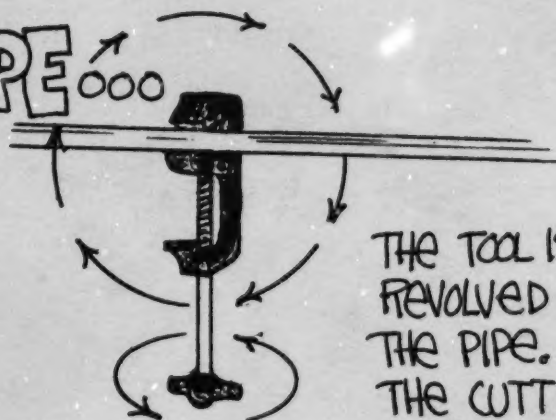
STEP 3

CUTTING THE PIPE



THE PIPE
CUTTER
HAS A
CUTTING
WHEEL.

AND TWO
ROLLERS



THE TOOL IS
REVOLVED AROUND
THE PIPE. AND
THE CUTTING
WHEEL IS
TIGHTENED BY
TURNING THE
HANDLE.

NOTE

TIGHTEN THE CUTTING TOOL
HANDLE ONLY A SMALL AMOUNT
AFTER EACH REVOLUTION AROUND
THE PIPE.

A SWEAT JOINT

WHEN SWEATING A JOINT... ALL THAT IS MEANT IS THAT ITS SOLDERED...



© MAKE A STRONG JOINT, THE COPPER MUST BE CLEAN.



STEP 4

USING 220 EMERY CLOTH RUB OUTSIDE OF PIPE & INSIDE OF JOINT.



Appendix C

To provide further examples of Project Discovery package activities, the following sample of nine packages and their activities has been included.

Wall Coverings

- Installing Dry Wall
- Finishing Dry Wall
- Refilling Nail Holes and Taping
- Installing New Siding
- Completing Dry Wall
- Sanding and Priming New Siding
- Priming the Dry Wall Surface
- Filling Nail Holes in Wood
- Finish Painting Interior Walls
- Exterior Painting
- Hanging Wallpaper
- Window Glazing
- Painting Trim

Small Engine Repair

- Changing the Oil
- Checking Compression
- Cleaning Carbon from the Engine
- Remove Flywheel from Small Engine
- Replace Points and Condensor in 4-Cycle Engine
- Remove, Clean, and Adjust Carburetor

Truckin'

- Pretrip Inspection
- Using the Motor Carrier Safety Regulations Book
- Dockworking
- Keeping a Log
- Rate Clerk
- Uniform Straight Bill of Lading

Accounting and Bookkeeping

- Cash Receipts
- Cash Disbursements
- Payroll
- Checks
- Bank Reconciliation
- Income Statement

Sales Representative

- The Company
- Product Presentation
- Asking for the Order
- Time Management and Planning
- Keeping an Expense Account
- Keeping Accounts
- More Good Salesmanship

Law Enforcement

- Accident Investigation
- Questioned Documents
- Criminal Investigation
- Fingerprinting
- Casting

Religious Service Careers

- The World's Religions
- Careers in Religious Service
- Planning Your Exploration
- Religious Education
- Learning More About Your Religion
- The Worship Service
- Prayer
- The Message

Biological Sciences and Technology

Metric Measurement

Preparation of Normal Saline Solution

Routine Urinalysis

Observation of Plaque and Epithelial Cells

Preparing a Culture

Preparation and Observation of a Smear

Blood Typing

Blood Counts

Skin and Nail Care

Choosing the Right Cosmetics

Facial Cleansing

Facial Massage

Applying Foundation, Blusher, and Lip Color

Contouring

Applying Eye Make Up

Manicuring

PROJECT HEAR

Cogent Associates
Princeton, New Jersey

Susan L. McBain
American Institutes for Research

10 January 1979

The information reported herein was obtained pursuant to contract no. 300-78-0432 with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to document information according to their observation and professional judgment. Consequently, information, points of view, or opinions stated do not necessarily represent official Office of Education position or policy.

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PROJECT OVERVIEW

- TITLE & LOCATION: Project HEAR
Cogent Associates
575 Ewing Street
Princeton, New Jersey 08540
- TYPE: Curriculum units
- PROJECT DIRECTOR: Joel Geller
(609) 921-1484
- SETTING: Project HEAR was developed in New Jersey and was tested in school districts throughout the state. The tested population consisted of fourth and eighth graders in urban and suburban settings. These districts ranged from a 99% white population to a 99% black population, with average socioeconomic levels ranging from lower class to upper middle class.
- STAFF: The staff needed in districts implementing Project HEAR consists of the teachers using the units plus a small amount of time from administrative and support personnel.
- GOAL: Project HEAR is concerned with changing students' stereotypes of sex roles in occupations. Integrated with this overall goal are the goals of increasing students' self awareness, knowledge of the world of work, and skill in decision making. Project HEAR's materials are designed to help all students understand their interests and abilities and to make choices free of the sex role stereotypes that can limit their options.
- EVALUATION DESIGN: At the primary (4-6) and intermediate (7-9) levels, pretest and posttest comparisons of experimental and control groups were made in 1975 and confirmed in 1977.
- MATERIALS: Learning Units have been developed for the primary (4-6), intermediate (7-9), and secondary (10-12) levels. Each unit consists of a Teacher's Manual, Student Workbooks, and other resource materials. Depending on the unit, the resource materials may include storybooks, slides, slide tapes, games, handbooks, and an occupational resource card system. Evaluation of the secondary materials has not been completed and results have not been established nor submitted to the Joint Dissemination Review Panel; however, the materials carry on the themes and approaches of the first two units and are included in the project description following this overview.
- COST: Learning Units cost an average of \$73 and all are under \$90. Each serves one class of 30 students. Costs for an optional inservice training session of two days are \$740 plus travel and subsistence costs. Costs per student at the primary level, assuming that 15 teachers and 450 students are involved, are \$6.25 for the initial use and \$0.69 in subsequent uses for replacement of consumables.

PROJECT DESCRIPTION

Among the most pressing problems facing today's educators as they try to help students learn about careers is that of counteracting sex role biases related to occupations. Project HEAR (Human Educational Awareness Resource) is a set of three curriculum units for grades 4-12 designed to help teachers do just that. The materials offer a multimedia, nongraded approach to help students understand themselves and the career choices open to them, minus the powerful hidden messages that "only men do these jobs; only women do those."

The three Learning Units are Primary (grades 4-6), Intermediate (7-9), and Secondary (10-12). The units are geared to students' different developmental levels and different learning styles. Project HEAR's materials are a blend of reading, writing, verbal, audio, visual, simulation gaming, and kinesthetic experiences. Activities are varied; students work individually and in large and small groups.

PROGRAM DEVELOPMENT

Project HEAR was first conceived in 1971 as a result of the growing awareness of women's issues. The term "career education" was little more than just a term at that time; yet Project HEAR, during its conceptual and developmental phases, arrived independently at the three principal thrusts of career education: self awareness, knowledge of the world of work, and skill in decision-making.

During Project HEAR's three years of development (1972-75), the curriculum was field tested in 13 New Jersey school districts. All materials were revised to reflect feedback from students and teachers and also to reflect the most current occupational information and statistics.

Materials were field tested with over 3,000 students and results were evaluated for fourth and eighth graders. The districts in which the units were used varied widely on several important characteristics:

<u>School District</u>	<u>Classification</u>	<u>Racial Mix</u>	<u>Average Income</u>
East Orange	Urban	95% Black	\$ 5,000-10,000
Livingston	Suburban	97% White	15,000-20,000
Montclair	Suburban	66% White 34% Black	15,000-20,000
Paramus	Suburban	99% White	10,000-20,000
Willingboro	Suburban	60% White 40% Black	15,000-25,000

Both boys and girls were taught and tested in approximately equal numbers. The program has proved effective with all types of students.

Program Goals

The three Learning Units focus on three different student goals, keyed to students' developmental levels. These goals are changes in students' self awareness, career awareness, and decision-making skill. Though each unit offers activities towards all three goals, one goal is the principal focus of each unit.

At the primary (4-6) level, the principal goal is changes in student attitude concerning occupational sex roles. At the intermediate (7-9) level, the principal goal is an increase in knowledge of the world of work. At the secondary (10-12) level, an increase in decision-making skill is the principal goal. The specific objectives for the primary and intermediate levels are:

- Elementary school students who participate in the program will show a significant change in attitudes towards the world of work as evidenced by a change in perception of occupational stereotypes when compared to a matching control group at the $\alpha=.05$ level as measured by an instrument uniquely designed for Project HEAR.
- Elementary school students who participate in the program will show a significant change in attitudes towards the world of work as evidenced by a change in preference for sex asynchronous occupations, that is, occupations in which men/women outnumber each other by a ratio of 2:1, when compared to a matching control group at the $\alpha=.05$ level as measured by an instrument uniquely designed for Project HEAR.
- Middle school students who participate in the program will demonstrate a significant increase in knowledge of the world of work when compared to a matching control group at the $\alpha=.05$ level as measured by an instrument uniquely designed for Project HEAR.

Evidence concerning these three objectives will be presented in detail in the Evidence of Effectiveness section of this paper. Evidence related to the goals of the Secondary Unit is not yet conclusive and data collection is continuing.

Program Philosophy

The program's philosophy can best be expressed by the program developers themselves:

We find ourselves caught in the current of newly emerging social roles and cultural expectations. A new socialization model is as yet unclear and the old male/female role models persist... side by side with the new. Forty two percent of the current work force is female.

Ninety percent of all women alive today in America will work at least part of their lives... Then why are 33% of all women workers employed as clerical workers; 17% employed as service workers; 14% employed as professional and technical workers; and 13% employed as operatives (mainly in factories)?... Why are women professional and technical workers earning 69% of men's salary income in the same category; women nonfarm managers, officials and proprietors earning 56% of men's salary income in the same category; and women clerical workers earning 62% of men's salary income in the same category?

Educational levels are rising in America. Demographic changes, dropping birth rates, and increased longevity, all point to a changing society, a society where work takes on increased importance.

The realities of an ever changing society challenge education specifically to provide all individuals with more assistance in developing an ability to cope with changing lifestyles; to engage in activities that provide all students with a framework in which to determine for themselves, who they are, where they want to be going and how they might expect to get to where they want to be.

MATERIALS AND ACTIVITIES

Each of Project HEAR's curricular units contains several learning modes. These serve two related purposes: to help each student learn in the way that is best for him or her; and to reinforce the learning within the unit by presenting the same kind of information in several different ways.

Contained in the Primary Learning Unit are the following:

- Thirty consumable individual Student Workbooks, "Whatcha Gonna Be?", designed to give students knowledge about self, the world of work, and decision-making skills.
- A Teacher's Manual designed to give teachers a rationale for HEAR's curriculum, the philosophy, the learning sequence, an explanation of each activity contained in the Student Workbook, plus additional suggested activities and discussion topics.
- Thirty non-consumable, individual "Storybooks" containing two original fiction short stories, "Everybody Gets Scared Sometimes," and "Dreams Sometimes Have to Wait." These stories are intended to portray men and women in realistic alternative role models; to expose students to a variety of occupations; and to promote discussion about feelings, emotions and the affirmation of a positive self image in children of both sexes.
- A cartooned film-strip and accompanying cassette, "What Can I Be?", intended to encourage students to view traditionally stereotyped occupational roles as suitable for both men and women.
- A set of 30 slides, "Images", to be used in conjunction with those sections of the Student Workbook concerned with self-exploration and the exploration of the world of work.

Contained in the Intermediate Learning Unit are the following:

- Thirty consumable individual Student Workbooks, "Whatcha Gonna Do?", designed to give students knowledge about self, the world of work and decision-making skills.
- A Teacher's Manual to serve the same purposes outlined for the Primary Learning Unit.
- Thirty non-consumable individual storybooks, "A Couple of Compendious Vignettes or Two Short Stories." Two original fiction short stories, "What Do You Do at the Hospital, Mom?" and "The Missing Link," are contained in the storybook. These stories are used in conjunction with the student workbook section on the world of work. They focus on the occupational fields of Health and Government and on 18 occupations within those fields which are projected to expand over the next ten years. Special care has been taken to ensure the non-stereotypic portrayal of the characters.
- "Images" is included in this unit with an additional 18 slides picturing 18 persons performing non-stereotyped occupations.
- An instructional simulation card game, "HEAR's Careers", designed to give students information about the education and/or training requirements for a selected set of careers, the differences and relative degrees of difficulty for males and females in achieving those careers. Career Record Sheets are included with the game.
- Thirty non-consumable individual legal rights brochures entitled, "A Guide for Women: The Law & Employment," designed to acquaint young women with their rights and responsibilities in the world of work.

Contained in the Secondary Learning Unit are the following:

- Thirty consumable individual student workbooks, "Working It Out," designed in a self-teaching response-reinforcement format. Students move from an exploration of self-awareness, into an exploration of social awareness, concluding with experiences in decision-making.
- A Teacher's Manual to serve the same purposes as outlined for the Primary Learning Unit.
- A cartooned filmstrip, and accompanying cassette, "The Dreamer," designed to acquaint students with the concept that any decision relating to occupational choice is directly correlated with and only begun with knowledge about self.
- A manual card-sort "Occupational Resource Card System," containing 850 occupations derived from the ten occupational classifications of the Dictionary of Occupational Titles. Each occupation is coded according to 18 variables of occupational characteristics. In the process of using the system, the student acquires both the specific occupational information and practice in establishing priorities among job-related variables.

- Thirty non-consumable individual legal rights brochures, "A Guide For Women: The Law & Employment," designed to acquaint young women with their rights and responsibilities in the world of work.

Each unit is designed to be implemented over approximately 35 class days, with 35-40 minutes per day devoted to activity. The units require no special physical facilities and no special equipment beyond that normally found in a school building or district.

Primary (4-6) Activities

The primary unit is divided into three sections: All About Me, All About Work, and All About Deciding.

All About Me. This section begins with a "People Slide Show" of 15 slides, showing human faces displaying different emotions. Through questions and discussion, children are encouraged to explore and accept the wide range of feelings which all people, including themselves, can feel and exhibit. Students answer questions in their Workbooks concerning the faces; the teacher can choose to have responses delivered verbally, in writing, or both ways. Ideas for individual or small group activities and discussions are also provided, including the topic of differences between boys and girls in showing feelings.

Next, the class plays a game entitled "Emotional Numbers." Students volunteer to act out emotions to the words "four hundred and forty," while the rest of the class tries to guess the emotion. Additional activities and discussion ideas are given, again including the topic of differences between boys and girls in showing emotions. The next activity is spread over several days. It is called the "Me Book," a personal description which each student develops about his or her own life. The sections of the Me Book include:

- Autobiographical fact page
- Ten things I like to do
- My five most cherished possessions
- Jobs I am responsible for (done alone and with others)
- My room (a drawing or photograph)
- How I spend my time (an hour by hour calendar)
- I am proud that ...

- Changes (past and future)
- The end (summary sentences about what the student has learned through the Me Book).

As an example of the activities, the "I Am Proud That ..." exercise is shown below.

I AM PROUD THAT ...

Sometimes being proud can only be a bragging when you don't feel you're doing well. This exercise helps you to think of other kinds of being proud - the kind that says you really feel good about yourself. Please complete these sentences:

1. I am proud that on my own I can _____.
2. I am proud that I made _____.
3. I am proud that I spend my allowance on _____.
4. I am proud that when I am scared I _____.
5. I feel proud when _____.

Directions for Me Book activities are given in the Workbooks, but the Me Book is intended to be assembled separately in a folder or notebook. There are opportunities for children to share their Me Books, but they are not required to do so.

In "The Trading Post," students are instructed to think of ways they would like to be different from the way they are. They then fill out order blanks listing traits they would like to have and traits they are willing to exchange for the new ones. Questions for discussion include the differences in patterns which boys and girls might have exhibited and why these might be.

All About Me closes with another series of slides depicting children in a wide variety of activities. Questions for discussion lead the students to consider what the interests and abilities of the person doing the activity might be, whether both boys and girls could do the activity, and what careers the activity might be related to.

All About Work. Students begin this section with a study of the meaning of work, play, and leisure activity, including a discussion of the jobs men and women can do.

The next activity is a filmstrip with cassette recording, entitled "What Can I Be?" The focus of the filmstrip is on sex roles in occupations, and the

discussion questions following the film encourage students to explore occupational roles and to give reasons for their opinions.

Next is a story entitled "Everybody Gets Scared Sometimes," which can be read aloud by the teacher or silently by students. It tells the story of Zach's first airplane ride and of how he overcomes his fears and learns that airplanes have stewards as well as stewardesses.

"Where Does It Come From?" is an activity in which students explore how familiar products are made, delivered, and sold. Students bring products from home for discussion. Ideas for other activities include speakers, field trips, and a classroom store.

The section concludes with another story, "Dreams Sometimes Have to Wait," which provides a large number of nontraditional role models for students of both sexes.

All About Deciding. The final section begins with a short story showing all the decisions one student makes in a day. The class discussion following this centers on values and the part they play in decisions.

Next, students refer back to their "Me Books" to the record of how they spend their time. This activity forms the basis for a discussion of choices and consequences of decisions.

In the next activity the students learn one way to vote. Suggested questions to put to a vote include themes from throughout the previous unit, especially those concerning sex roles.

"Four Corners" is a game in which students must quickly choose between four attractive options and gather in the corner of the room designated for their option. They are then asked to list with the group all the reasons they chose that corner. Lists are then shared with the whole class. The purpose is to focus on decisions and how they arise from values.

Finally, groups of students are asked to solve difficult problems which have no right answers. The follow-up questions in the Workbook direct students' attention to group and individual behaviors in working together, rather than the content of the problem.

Intermediate (7-9) Activities

The main emphasis in the intermediate unit is the world of work. Like the primary unit, this unit is divided into three sections: Looking at Myself, Looking at the World of Work, and Deciding.

Looking at Myself. The first activity of this unit is a short fantasy tale about the self and what happens if it gets lost. The story raises the question, "Why study yourself, anyway?" as an introduction to this section of the unit.

A "People Slide Show" is next, with slides and discussion questions about feelings, similar to those in the primary unit. Group and individual activities are suggested for follow-up. Discussion questions center on how reactions of boys and girls (and men and women) may differ and why.

The student exercises in this section begin with "The Big Five," which asks students to identify their five most cherished possessions. Discussion centers on values and choices of different sexes. A second exercise, "Whom Do I See?", directs students to name the person (other than themselves) they would most like to be, the person they would least like to be, and which they most resemble. Discussion centers on sex and occupation of each choice.

"All About Me" is an exercise in which students examine their skills, strengths, values, and weaknesses. The teacher then helps students examine the skills or personal characteristics implied by their answers.

A "Fill-In" exercise poses some open-ended questions which students answer about themselves. Pairs of students then compare answers to look for their similar responses. An "Interest Log" helps students identify specifically what they like to do, beginning with activities in school subjects and proceeding to hobbies and other activities. Follow-up activities include discussions of ability, interest, possible occupations, and differences in boys' and girls' responses.

The next exercise is "What Do I Like? What is Important to Me?" In this exercise students list things they like to do and then list important characteristics of those activities (for example, it's done in a group; it costs money). In group sessions, students share why they enjoy these activities.

Finally, in a game called "What's In a Name?" students examine their feelings about their own names. Then they give others in their group new names and talk about why they chose the names they did.

Looking at the World of Work. This section also opens with a short story which deals with the interrelatedness of work in the modern world.

The student exercises begin with one on "Work-Related Values." Students are asked to rate 15 work characteristics as very important, important, or not important to them. Then they compare work values which are contradictory (such as cooperation and solitude). Finally, they list work values they would associate with eleven different careers. It is of course no accident that

all the people listed as performers of these careers ("Maya Angelou, writer") are women!

The next exercise, "Values and Careers," asks students to match a set of ten quotations with a list of 15 work-related values. Students are then asked to choose quotations that they personally identify with and examine the values expressed in each one. Then each student chooses one occupation which he or she feel suits her or his most important identified value.

Examples are shown below:

<u>Values</u>	<u>Statements</u>
Helping others Recognition; approval Fame	"What I really like about my job is that whenever I do something well, I know that I'm going to get credit for doing it." "Being in the theatre isn't as easy as I thought it would be. It's a lot of hard, frustrating work at times. But something happens to me when I see my name in print or in lights and the final applause makes it all worthwhile." "The greatest satisfaction that I get out of my work is knowing that I've really helped someone lead a happier, better life."

A card game entitled "HEAR's Careers" is next. In this game, students try to accumulate enough "education" points, "training" points, and "luck" points to qualify for various careers. The game has several purposes. First, it imparts factual career information, including starting salaries. Second, its information is presented grouped by sex; through this strategy, it forcefully conveys the message that more education, training and luck are needed by women than men to achieve lower starting salaries in many occupations. Third, the game is somewhat vague in structure, so that playing the game itself becomes a group process, which is helpful in identifying how boys and girls solve problems. Follow-up discussion focuses on the occupational stereotypes and the real world of work for women and men.

The next activity is an introduction by the teacher to "Data, People, Things." Information is presented on occupational codes used in the Dictionary

of Occupational Titles. The discussion leads into the short story readings in the Learning Unit--"What Do You Do at the Hospital, Mom?" and "The Missing Link"--which present occupational information and nontraditional occupational sex role models. Student research into one of the occupations in the stories is suggested, bringing all earlier study on hiring requirements, work values, and data-people-things classification into focus. Then, an "Occupational Slide Show" presents 18 people at work in the occupations mentioned in the short story.

"Fantasy Career" helps students identify the specifics of a career they might like to enter, such as training, working hours, and associated values. Suggestions are given for small- and large-group discussions.

A second version of "HEAR's Careers" focuses only on the 18 occupations in the short stories, and removes the inequality between boys and girls. The occupational facts used in this version of the game are those gathered by the students themselves in their earlier research.

A second slide show on "Skills" helps students think about performance of different jobs. Field trips and speakers are suggested to follow up the slides.

Workers in schools offer students a logical way to experience collecting first-hand information on careers. An activity called "Hey! What's Everybody Doing?" asks students to interview school personnel of all types. The information is used for discussion of occupational characteristics and occupational sex roles.

Finally, each student explores "What Would You Like to Do?", listing interests, values, and abilities as well as information still needed to make a choice. Suggestions for further library study are given.

Deciding. This section on decision-making begins with two very short stories on decisions. The first was made by President Harry Truman to drop the first atomic bomb; the second, by Rosa Parks in Montgomery, Alabama, to not move to the back of the bus. Questions help students identify their options, values, and decisions. This "Values and Decisions" exercise is followed by one on "Values and Choices." Students identify some of their own recent decisions and discuss their options and reasons for choices.

"Objectives and Options" presents several people who have decisions to make and asks students to explore their options. This activity is followed by another version of the "Four Corners" game played in the primary unit. Students must quickly choose one of four options and move to the corner of the

room designated for that option. Teachers may use the sets of options provided or come up with their own.

The activity "Operation Target" presents students with the task of ranking 15 items in importance, both individually and as a group exercise. Correct answers are in the teacher's manual. The intent of the exercise is to examine differences in decision-making alone and in groups, and suggested discussion questions focus on these topics.

The last exercise again emphasizes individual and group problem solving in relation to "The Old Woman and Her Cow." As follow-up, students return to their lists of 15 work-related values from the previous section and characterize their work as individuals and in groups. Finally, students are asked to sum up their points of view regarding the value of knowing about themselves, the world of work, and decision-making.

Secondary (10-12) Activities

This final unit of Project HEAR is still being evaluated and has not been presented to nor approved by the Joint Dissemination Review Panel. The description below is provided for educators who wish to see Project HEAR's themes and approaches continued at the high school level.

Like the earlier materials, this unit has three sections: Self Awareness, Social Awareness, and Decision-Making. This unit primarily stresses decision-making as most appropriate to the 10-12 developmental level.

The unit begins with an animated filmstrip entitled "The Dreamer," a lighthearted introduction to the curriculum's three themes. Discussion questions lead into the focus of the first section on self awareness.

Self Awareness. This section is built around the concepts of interests, aptitudes, and achievements. It begins with a brief questionnaire on "Where Are You Now?" in those areas. Then it introduces the Occupational Resource Information System which is part of the unit. This hand-sort system contains 850 cards, each representing a different occupation coded according to characteristics given in the Dictionary of Occupational Titles. Each card contains 18 descriptors of occupational characteristics, hole-punched according to the occupation. By placing a sorting needle through the holes for the description of interest, the student can sort out those occupations which possess desired characteristics. The unit presents the students with two exercises in using this system: selecting and prioritizing desired occupational characteristics, and identifying occupations which have all or some of the desired characteristics. Because the 850 occupations are a cross section of all occupations described in the DOT, the student is able

to transfer learning to all available job options.

The meaning of aptitude, and its difference from achievement, is examined via discussion on "Your Aptitudes." Then exercises entitled "What's In a Score?" help students to explore the aptitudes which may help people to do well in certain occupations. This is followed by work in small groups to identify each student's aptitudes as seen by others and by the student. Finally, each student lists his or her own major aptitudes and some occupations that may fit these aptitudes.

"What Have I Done With My Life?" focuses on achievements. Students are asked to examine their major activities and the measures of their achievement (grades, athletic letters, etc.). The section ends with questions concerning enjoyment of these activities.

Social Awareness. This section begins with a pair of questionnaires briefly describing several people and asking students to characterize each person along given dimensions. The questionnaires are identical, except that one set of people is female and the other male. The purpose of the exercise is to explore social attitudes among the students concerning males and females, and particularly to see if the patterns of reactions differ between boys and girls.

Two very short stories follow, "The Anonymous Musician" and "Noreen's Story." Questions following these stories help students examine the effects of discrimination and stereotyping on minorities and women, and form the basis for further discussion.

On a questionnaire on "Women and the World of Work", students are asked to mark as true or false several widely held beliefs concerning women and work (salaries, need for work and income, etc.). This is followed by facts and statistics on the actual status of working women. A follow-up questionnaire covering the same topics is used to lead into a discussion of facts vs. stereotypes.

The focus of "The Changing Nature of Work" is on the shift in numbers of workers from agricultural occupations into industrial and service occupations since 1750. "Where Will People Work?" carries the same theme on into specific occupations. "Future Trends" helps students examine the future in light of two trends from the past: dollars invested in research for new products and production processes, and birth rate/population level. Finally, "Inventing the Future" hypothesizes several marvelous new inventions and asks students to identify new occupations which will be created as a result and also occupations which will become obsolete.

Decision-Making. This section opens with a parable on decision-making entitled "The Adventurous Ant." In analyzing the ant's experience, students identify the decision, the reason, and the true situation as known to the reader.

The next activity presents "Some Steps in Decision-Making," specifying five steps and applying them back to the story of the ant. Teachers are encouraged to expand the activity for class discussion into examples which are relevant for their own students.

"Information and Decision-Making" presents several examples of decisions which are not based on good information. "Some Decisions Are More Important" asks students to rate the importance of various decisions, such as "report a fire," "vote," and "choose what to wear to school." The focus of this exercise also includes the student's feelings of control over her or his life and decisions.

"Values and Decision-Making" is built around the stories used in the intermediate unit on Harry Truman and Rosa Parks. Questions and discussion suggestions are more detailed than in the earlier version, however, and include discussion of a three-step process of valuing.

"Tower Building" is an exercise in work processes. Groups of students are given materials to build a tower. One person per group acts as observer and notes the work preferences and styles of the other students. The observer responds to questions such as the following:

- Who assumes leadership? Is the leadership shared? Is there a leadership conflict?
- What is the atmosphere of the group? Competitive? Silly? Bored? Fun? Would it change if there were a money prize?
- Is a plan decided upon or does the group just begin to build?
- Are certain people concerned with only one aspect of the tower such as decoration or foundation?
- Does anyone or everyone listen (or not listen) to ideas presented to the group?
- Is there any differentiation of male and female roles?

The "Tower Building" experience concludes with a fairly long exercise in values analysis related to the tasks. Tasks are valued for themselves and then with different levels of associated salary, security, and other variables. The final question in the exercise asks students to describe their own opinions of the best way to evaluate aspects of a work situation.

The unit concludes with a "Where Are You After?" version of the opening exercise, designed to help students examine how they have grown during the unit.

The Approach of Project HEAR

Project HEAR is not intended to be a static set of activities. Throughout the materials, and especially during inservice training, teachers and others involved with the units are encouraged to use their creativity and their insight into the issues discussed to focus and enrich student learning.

All activities in all units are designed to lend themselves to expansion and reorganization by the teacher. In addition, there are several points in each unit where the teacher can make choices as to mode of presentation, mode of response, and type or types of follow-up activities.

Teachers are encouraged to have students reinforce their learning after each activity by completing one or more sentences beginning "I learned...". This activity is also suggested at the end of each total unit. Students are not expected to gain identical growth; indeed, a discussion of what different students learn from a unit and why may be among the most fruitful discussions of all.

Since Project HEAR emphasizes the value of individual perceptions, testing student learning is not part of its approach. The testing done during unit development was for validation purposes only; its approach will be described under Evidence of Effectiveness.

PARENT AND COMMUNITY INVOLVEMENT

Parents and community members are not essential to the implementation of Project HEAR. However, their involvement can be greatly enriching to the program if they participate at appropriate points. Usually the sections on the world of work provide the most valuable occasions for their involvement. The materials offer some suggestions, but teachers may recognize other opportunities for effective parent and community involvement as well.

It is particularly important that the people who participate in Project HEAR be sensitive to and in sympathy with its goals. Women and men who are working in nontraditional occupations are especially valuable; but at the very least, parents and community members should not perpetuate current sex role stereotyping in their interactions with students.

STAFFING AND MANAGEMENT

Staffing

Project HEAR's materials require the services of only one teacher at each level. However, within the activities the teacher has great discretion in expanding activities and involving other school staff, if desired.

No appreciable administrative time is required for implementation. Field trips and guest speakers are helpful additions to some activities; these may be arranged through whatever channels are normal for the school or district. The contributions of counselors, administrators, and other school personnel as speakers or information resources are also valuable in certain activities.

Management

Each Project HEAR unit can be implemented in about 35 class days. This means that one unit can be used approximately twice in one semester or four times per year. Therefore it is possible to rotate a unit among four teachers, or groups of students, per year with consumable units being replaced for each new implementation. (Costs of consumable materials are given later in this description.) It is not advisable to rotate materials among teachers for implementation during the same time period; additional curriculum units should be purchased instead. Inservice training should be scheduled before the semester begins, or as soon thereafter as possible. If this is not feasible, training may be scheduled in the previous semester.

An atmosphere supportive of bias-free education is perhaps the most important management strategy for implementation of Project HEAR. This atmosphere exists in many schools, but often can be developed or improved through increased information and sensitization to the realities of sex role stereotyping. Portions of the inservice training program provided by Project HEAR developers speak to this subject, and may be useful for nonteaching staff as well as teachers.

Inservice Training

The classroom implementation of Project HEAR's activities does not absolutely require inservice training. Most activities are straightforward and descriptions in the student and teacher materials are complete. However, Project HEAR's developers feel that most adopters can benefit greatly from the training sessions they offer.

An average session lasts two days and is structured around the needs and characteristics of the adopting district. The training is designed to sensitize participants to the many subtle ramifications of sex stereotyping in themselves and in society. Rather than addressing specific topics, the training concentrates on helping participants to answer for themselves the following questions:

- What are the limitations placed on people in the real world due to gender?
- How do I feel about the limitations placed on me?
- What choices do I have?
- How do I make decisions?
- What are the consequences of my decisions?

The program developers feel that this approach to training helps participants to greatly enrich student discussions and facilitate genuine student change. It also helps participants to feel comfortable with the materials, to take personal ownership of them, and to expand or change them based on their own abilities and intuitions as teachers and members of society.

In addition to meeting these purposes, the training is designed to help the participants make plans for implementing the materials with their students. This includes scheduling the unit, selecting among optional activities, estimating activity lengths, and other details, if the participants wish.

COSTS

The costs for adoption of Project HEAR are as follows:

Primary Learning Unit	\$68.37
Intermediate Learning Unit	\$64.49
Secondary Learning Unit	\$86.24

Each unit includes materials for the teacher and for 30 students. Fifteen percent above costs is charged for handling and storage, plus shipping costs. Consumable student workbooks may be replaced at a cost of \$0.69 apiece at the Primary and Intermediate levels and at \$0.90 apiece at the Secondary level.

The cost breakdown on the following page is based on the assumption of staff training for 15 teachers and use of materials by 450 elementary students.

	<u>Installation Non-recurring</u>	<u>Subsequent Recurring</u>
Staff Training		
Two days training		
15 teacher's substitutes		
30 teacher days @ \$35/day		
\$1050 - 30 students		
for each of 15 classes		
\$1050 ÷ 450	\$ 2.33	-0-
1 trainer/15 teachers		
@ \$370/day for 2 days		
\$740 ÷ 450	1.64	-0-
Special Facilities	-0-	-0-
Equipment	-0-	-0-
Consumables	-0-	-0-
15 Learning units		
@ \$68.37/each		
\$1,025 ÷ 450	2.28	.69
Other	-0-	-0-
Total (per learner cost)	\$ 6.25	\$.69

EVIDENCE OF EFFECTIVENESS

Claims of Effectiveness

The following claims of effectiveness were made in the evaluation of Project HEAR. These claims of effectiveness concern the primary and intermediate levels only; the secondary level has not yet been fully evaluated.

For primary students, the program is effective in:

- changing perceptions of sex-linked occupational stereotypes so that more occupations are perceived as gender-free, and
- changing attitudes towards sex-stereotypic occupations so that respondents express preference for more sex-asynchronic occupations (that is, occupations in which the respondent's sex is opposite to the gender typically ascribed to the occupation).

For intermediate level students, the program is effective in increasing knowledge of the world of work. In other words, Project HEAR claims to have met the objectives listed on page 3 of this description.

Interpretability of Measures

Three instruments were developed to measure student change. At the primary level, the Primary Occupational Stereotype Inventory (POSI) and Primary

Occupational Preference Inventory (POPI) were developed and field tested. For intermediate students, an Occupational Knowledge Inventory (OKI) was developed and field tested.

To measure student growth in the area of Project HEAR's first objective, changing student perceptions of occupational stereotypes, the POSI was developed to elicit sex-linked occupational stereotypes. It was derived from the Primary Occupational Feeling Inventory of Bingham and Cubit-Swoyer (1970). The instrument was modified to the reading level of the fourth grade, and utilized verbal rather than graphic occupational stimuli. The test has 30 items, each listing an occupation. The student responds by indicating whether the occupation employs a man, a woman, or both sexes by marking the appropriate figure.

The two-week coefficient of stability for the POSI yielded a Pearson $r = .750$ ($N = 54$). Over a six-week period, Pearson $r = .751$ ($N = 67$).

The construct validity of the test instrument was demonstrated by comparison with employment data from the 1970 U.S. Census. These data were used to compute the actual ratio of the number of males to females employed in the occupations sampled. Comparing the ranks of occupations based on employment ratios with ranks of occupations based on percent of students who identified the occupation as masculine or feminine, the resultant Spearman rho was $r = .92$ for masculine occupations and $r = .74$ for feminine occupations.

For the second objective, changing student preferences for sex asynchronous occupations, the POPI was developed to measure the occupational preference of elementary students. It was also derived from the Primary Occupational Feeling Inventory. This test also has 30 items, and the student indicates whether he or she likes or dislikes the occupation by filling in the appropriate box.

The six-week coefficient of stability of preference scores yielded a Pearson $r = .914$ ($N = 30$). Six-week coefficients of stability using Spearman rho for occupational preference rankings were: $r = .89$ for males; $r = .94$ for females; and $r = .86$ for males and females combined.

Construct validity was demonstrated in two comparisons: (1) preference rankings were compared with prestige rankings of occupations (from Borow, Man in a World at Work, 1964, p. 75). The resulting Spearman rho $r = .613$; and (2) preference rankings were compared with socio-economic status rankings of occupations (from Crites, Vocational Psychology, 1969, pp. 56-57). The resulting Spearman rho $r = .603$.

For the third objective, increasing knowledge of the world of work in intermediate level students, the OKI was used. The OKI is a locally developed test in which names of occupations are matched to occupational descriptions.

It is presumed by its developers to have content validity.

The internal consistency of the test has been estimated from a split-half reliability coefficient. The split-half Pearson $r = .47$. Reliability of the whole test is estimated as $r = .64$, using the Brown-Spearman formula. The six-week coefficient of stability Pearson $r = .62$.

Evidence of Impact

Project HEAR materials were field tested in 1975 on a sample cross-section of 13 New Jersey school districts. The target population ($N = 3,000$) for the field test was representative of each of the districts' total populations.

At the primary level, four experimental and three control classes were randomly selected for testing, representing approximately 5% of the students on whom the project was field tested. The fourth grade experimental and control classes were drawn from the Livingston School District, the East Orange School District, and the Montclair School District. In 1977, additional data were collected from a randomly selected experimental and control class in the Willingboro School District.

At the intermediate level, Project HEAR's Intermediate Learning Unit was field tested on 116 experimental eighth grade students. The control sample was drawn from the same school districts.

At the primary level, pretest data were collected from the experimental and control classes within the same week in the Spring semester of 1975. Posttests were collected six weeks later from the same groups. Boys and girls were tested together.

Two experimental groups were discarded from analysis in 1975 because the pretest was administered incorrectly. These two groups were included in the 1977 data analysis.

For the intermediate level, the program was administered in several different school systems in 1975. Pretest data were collected from four experimental and three control classes within the same week in the Spring semester of 1975. Posttests were administered to both groups six weeks later. Boys and girls were tested together.

Experimental Design. At the primary level, data were analyzed using two different designs. The first, in 1975, employed a pre-post contrast of experimental and control groups. Table 1 gives sample sizes for these groups.

Table 1

Sample Size for 1975 Data Analysis, Primary Level

<u>Experimental Group</u>	<u>Female</u>	<u>Male</u>	<u>Total</u>	<u>Control Group</u>	<u>Female</u>	<u>Male</u>	<u>Total</u>
1	11	8	19	1	14	8	22
2	12	10	22	2	11	8	19
3	15	10	25*	3	13	9	22
4	15	11	26*				
Total	53	39	92		38	25	63

Since intact classrooms, rather than subject randomization, were used to determine treatment status, this qualified as a nonequivalent control group design. Subsequently experimental and control groups were shown to be matched on the pretest measure.

A second (1977) experimental design examined the posttest scores of four groups, including both 1975 and 1977 samples. Sample sizes are shown in Table 2.

Table 2

Sample Size for 1977 Data Analysis, Primary Level

<u>Experimental Group</u>	<u>Female</u>	<u>Male</u>	<u>Total</u>	<u>Control Group</u>	<u>Female</u>	<u>Male</u>	<u>Total</u>
Pretested	53	42	95	Pretested	39	27	66
Unpretested	8	11	19	Unpretested	10	8	18
Total	61	53	114		49	35	84

At the intermediate level, the experimental design was a pre-post comparison of experimental and control groups. The *t*-test was used to examine pre-post difference in test scores for experimental and control groups. The level of significance set for all tests was $\alpha=.05$. Table 3 shows sample sizes for these groups.

Since it was not possible to utilize matched control groups from the same school system, effort was made to select control groups from school districts having the same demographic characteristics and racial composition

Table 3

Sample Size for 1975 Data Analysis, Intermediate Level

<u>Experimental Group</u>	<u>Female</u>	<u>Male</u>	<u>Total</u>	<u>Control Group</u>	<u>Female</u>	<u>Male</u>	<u>Total</u>
1	11	15	26	1	15	16	31
2	6	11	17	2	11	11	22
3	23	24	47	3	10	11	21
4	10	16	26				
Total	50	66	116		36	38	74

as the experimental districts. Census tract data and enrollment data were obtained from eleven school districts. Post hoc intelligence and reading scores were obtained for experimental and control classes. A t -test of the pretest mean scores of experimental and control groups showed no significant differences in means at the $\alpha = .05$ level. ($t_0 = 1.21$)

Data Analysis. At the primary level, the first objective was evaluated via results on the POSI. In the first data analysis (1975) two experimental and two control classes were compared.

Table 4

Mean Raw POSI Scores for Experimental and Control Primary Students

		<u>Pretest</u>		<u>Posttest</u>		<u>Change</u>	<u>ANCOVA</u>
	<u>N</u>	<u>$\bar{X}$</u>	<u>SD</u>	<u>$\bar{X}$</u>	<u>SD</u>	<u>$\bar{X}$</u>	<u>F and p</u>
Experimental Group	41	11.4	5.9	18.0	7.2	+6.6	F = 11.7
Control Group	41	9.1	5.8	12.1	7.5	+3.0	p < .005

Table 4 shows that fourth grade students who participated in Project HEAR increased the number of occupations perceived as gender-free, and that the difference was statistically significant. The gain difference between experimental and control students of 3.6 points is approximately one-half of a standard deviation. Therefore it can be concluded that the objective to change sex-linked occupational stereotypes was met.

The program was replicated again in 1977 in the Willingboro school district. Accordingly, the data from both 1975 and 1977 were re-examined using data from the expanded sample. The results are shown in Table 5. The difference between the combined experimental and control group means of 7.2 points was

Table 5
Mean Posttest Raw POSI Scores

	<u>Experimental</u>			<u>Control</u>			<u>$\bar{X}$</u>	<u>t and p</u>
	<u>N</u>	<u>$\bar{X}$</u>	<u>SD</u>	<u>N</u>	<u>$\bar{X}$</u>	<u>SD</u>	<u>Diff.</u>	
Pretested (1975)	95	18.9	7.2	66	10.9	6.9	8.0	7.11, $p < .0005$
Unpretested (1977)	19	17.3	6.8	17	12.8	6.4	4.5	1.92, $p < .05$
Combined	114	18.6	7.2	83	11.4	6.8	7.2	7.01, $p < .0005$

greater than one standard deviation and was statistically highly significant.

The second objective was evaluated by means of differences in student scores on the POPI. Table 6 shows the results.

Table 6
Mean Posttest POPI Scores (in Percentages)

	<u>Experimental</u>	<u>Control</u>	<u>Difference</u>
	<u>$\bar{X}$</u>	<u>$\bar{X}$</u>	
Males			
Pretested (1975)	18.5	13.4	5.1
Unpretested (1977)	28.4	9.4	19.0
Females			
Pretested (1975)	26.0	24.5	1.5
Unpretested (1977)	40.0	23.5	16.5
Combined Male and Female (1975 and 1977)	24.4	19.4	5.0

The t-test was used to examine the significance of the difference in experimental and control group means. The resulting $t_0 = 13.9$ was significant at the $\alpha = .0005$ level. Table 6 shows that fourth grade students who participated in Project HEAR increased significantly more than control students their preference for sex-asynchronous occupations. Therefore it can be concluded that the objective of changing student preferences for sex-asynchronous occupations was met.

At the intermediate level, scores on the OKI yielded the results shown in Table 7.

Table 7

Mean OKI Scores for Intermediate Students

	<u>N</u>	<u>Pretest</u>		<u>Posttest</u>		<u>Change</u>	<u>t and p</u>
		<u>X</u>	<u>SD</u>	<u>X</u>	<u>SD</u>		
Experimental	105	41.4	18.6	67.4	22.4	+26.0	<u>t</u> = 4.8
Control	32	45.5	19.3	49.5	23.5	+ 4.0	<u>p</u> < .005

A t-test of the pre-post difference for experimental and control groups confirms that the mean increase shown by the experimental group was significantly greater than the mean increase shown by controls.

The gain difference between experimental and control students of 22.0 points is approximately one raw score standard deviation. Therefore the program objective to increase occupational knowledge at the intermediate level was met.

Meaningfulness of Results

The nature of the experimental design and the level of significance with which the results were achieved gives evidence that the program would be effective if replicated under similar circumstances. The results were achieved in several different school districts, in both public and parochial schools in 1975, and replicated again in 1977 in a different geographic locale within the state with similar results.

For those occupations in which one sex outnumbered the other, the demonstrated gain in gender-free occupational perceptions would translate into a highly significant expansion of career options for both boys and girls.

Favorable Review by Joint Dissemination Review Panel

The Joint Dissemination Review Panel (JDRP) was established by the Education Division of the Department of Health, Education, and Welfare in 1972. The joint U.S. Office of Education/National Institute of Education (OE/NIE) Panel currently has 22 members, eleven from each agency, appointed respectively by the Commissioner of Education and the Director of NIE. The JDRP meets periodically to review the evidence of effectiveness submitted for a wide variety of federally supported educational products and practices, with effectiveness being the sole criterion for approval by the JDRP. It is charged with the responsibility of ensuring that educational interventions -- projects, products, or practices -- have been shown to have positive impacts on their recipients before they are disseminated with

federal funds or endorsed by the Education Division.¹

In May 1978, the JDRP reviewed Project HEAR and approved it for nationwide dissemination.

CONCLUSION

This program enhances career awareness as indicated by changes in attitude and knowledge about occupations, which responds to the recommendation of educators, parents, and many others that schools participate in the development of career awareness. In particular, the program expands the career options of both girls and boys by increasing knowledge about sex stereotyping of occupations, by providing nontraditional role models, and by emphasizing that each person has skills and interests which are not constrained by gender. Project HEAR's evaluation findings are consistent with Super's theory of vocational choice. Super concludes that, "When stereotypes are gender-free, the individual expands his/her options for occupational choice."

¹Tallmadge, G.K. The Joint Dissemination Review Panel: IDEABOOK. Washington D.C.: NIE/DHEW, September 1977.

PROJECT EQUALITY

Highline Public Schools
Seattle, Washington

Jack A. Hamilton
American Institutes for Research

John D. Ross
Highline Public Schools

30 June 1978

The information reported herein was obtained pursuant to contract no. 300-77-0303 with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to document information according to their observation and professional judgment. Consequently, information, points of view, or opinions stated do not necessarily represent official Office of Education position or policy.

FOREWORD

This activity description was prepared as part of a study conducted by the American Institutes for Research (AIR) under contract No. 300-77-0303 to the U.S. Office of Education. The purposes of the study were to identify evaluated, exemplary career education activities; to recommend identified activities to the Joint Dissemination Review Panel (JDRP) of the Education Division, Department of Health, Education, and Welfare; to prepare descriptions of identified activities; and to develop a handbook with six models for evaluating career education activities.

The criteria established for screening activities in this study intentionally limited choices to those whose evaluation reports presented evidence of effectiveness. Close attention was given to the soundness of evidence in evaluation reports. A minimum requirement for this evidence of effectiveness was that some comparison standard be provided so that gains made by the students participating in the activity could be attributed to the impact of the activity. After confidence in the evidence of effectiveness was established, further criteria were applied. These criteria included consistent relationships between a well-planned assessment of needs, a statement of desired student outcomes, the selection of instruments, and the procedures used in data collection, management, and analysis.

This document describes one of ten projects that was selected from among 250 submitted. It presents one locale's way of successfully implementing a career education activity, the results of which are educationally significant. Although the description reflects an activity developed in response to local needs, other school districts with similar needs may wish to adapt parts or all of it according to their own circumstances and philosophy.

We are especially grateful to the original director and staff of Project Equality, and to the many school staff members who generously gave their time to answer questions from AIR site visitors. They extended a special kind of hospitality and spared no amount of effort to provide the information necessary to prepare this description. They made it possible for the site visitors to see the program in action, as well as to understand the philosophy and strategies that underlie its operations.

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PROJECT OVERVIEW

- TITLE & LOCATION: Project Equality
Highline Public Schools
Educational Resources and Administrative Center
15675 Ambaum Blvd., SW
Seattle, Washington 98166
- TYPE: Infusion
- PROJECT DIRECTOR: John D. Ross
Ph: (206) 433-2454
- SETTING: Project Equality's home site was the Highline School District near Seattle, Washington where it has been in operation for six years. Field testing was conducted in two neighboring districts, Northshore and Bellevue. These two districts, as well as the Highline district, can be characterized as predominantly middle-class, with 90% or higher white populations.
- STAFF: The Project Equality staff consists of a director, an information facilitator, and a secretary.
- GOAL: The goal of Project Equality is to expand students' perceptions of occupations open to females and those open to males. The specific objectives to attain that goal have dealt primarily with the acquisition and development of media and materials that enhance the availability of choice for all students in the elementary classroom and reflect the changing definition of what "women's work" is.
- EVALUATION DESIGN: The impact of Project Equality activities upon students was assessed in 1977-78 by testing comparable groups of treatment and control students.
- MATERIALS: The staff of Project Equality have developed three sets of materials which may be used independently or in combination: occupational simulation packets, the Yellow, Blue, and Red Book, and Many Thousand Words - Work Pictures. Each set of materials is designed to provide students with nontraditional sex role models. The materials present simple, interesting, bias-free activities which demonstrate that work skills can be possessed by persons of both sexes.
- COST: The Project Equality materials are relatively low in cost and the program can easily be implemented within any K-6 curriculum. Assuming a district had 3,000 K-6 students and assuming adoption expenditures for staff development, materials and contracted services, per pupil costs would be \$2.11 in the first year and \$0.95 in subsequent years.

PROJECT DESCRIPTION

Project Equality has attempted to develop and field test procedures for expanding students' perceptions of occupations open to females and those open to males. The specific objectives to attain this goal have dealt primarily with the acquisition and development of media and materials that reflect the changing definition of what "women's work" is. Each set of materials is designed to provide students with nontraditional sex role models. The materials present simple, interesting, bias-free activities which demonstrate that work skills can be possessed by persons of both sexes.

PROGRAM DEVELOPMENT

Project Equality's home site was the Highline School District near Seattle, Washington. Project materials were developed and revised extensively during the first three years of project operation. Final field testing was conducted outside the Highline District to assure that no student exposure to materials had taken place in earlier years. The field test results discussed later in this project description are from two districts, the Northshore and Bellevue School Districts, also near Seattle. These two districts, as well as the Highline School District, can be characterized as predominantly middle-class, with 90% or higher white populations. Northshore School District covers an area which is rapidly evolving from a farm economy to a combination industrial and residential area. The Bellevue School District contains mainly middle and upper middle class families, with a high percentage (67%) of professional, technical and managerial workers. Per-pupil expenditures in the Northshore School District were \$1,386 in 1976-77, while in the Bellevue School District they were \$1,587.

Like the total populations of the school districts, the K-6 students with whom project-developed materials were used are primarily white and middle class. Achievement levels vary, however. The latest figures from the annual statewide assessment of fourth grade achievement, using the Comprehensive Tests of Basic Skills battery, show Northshore students scoring at the 58th percentile on the average, while Bellevue students scored at the 69th percentile on the average. Students in the Highline School District, where the project materials were originally developed, scored at the 48th percentile. Each student population contained approximately equal numbers of boys and girls.

Needs Assessment: The Nation

An increasing body of research is documenting the occurrence of stereotyped education for girls and young women -- an education that views girls as passive, less task-oriented, and less able than boys. Longer life span, new legislation restricting sex-identification of jobs, and a reduced birth rate have increased the length of time women will be working and have made more varied work roles a definite probability. However, cultural and social influences have restricted girls from performance tasks and tended to concentrate on the homemaker aspects of women's activities. As girls proceed through school, their views of themselves and their role in the world of work become increasingly stereotyped. Through a largely restrictive self-image, classes are chosen and careers begun. If preparation for active, independent adulthood with a potentially successful career is a valid goal, it must be a valid goal for all students -- not exclusively for boys and young men.

Needs Assessment: Local

The need for reducing sex stereotyping first became apparent when the Highline School District involved the community in determining career education goals. In 1971, one of the goals was to provide all students with opportunities to look at career alternatives. After that the district, in coordination with the University of Washington, did a study of fifth grade students in which they were asked to list the kinds of jobs they would like to do. The next question was to describe a day in their work life. The findings showed that boys described work while girls described housework. In general, the study demonstrated that both boys and girls tended to see jobs in terms of masculine and feminine stereotypes, and that occupational aspirations of the fifth grade girls fell heavily into feminine stereotyped roles.

From these and similar findings, it became apparent to district officials that a concerted effort was necessary to counteract the stereotyping that was prevalent throughout the schools. This growing district awareness was reflected in a statement by the Washington State Superintendent of Public Instruction:

Some specific courses of action to make improvement in this [sex stereotyping] area are:

1. Special care must be taken in elementary and secondary schools to use textbooks which do not depict men and women in stereotyped sex roles. The content of courses must be revised, where necessary, to give a balanced account of women's contributions to our civilization.

2. Every course of study, including specialized trade and technical courses, must be open equally to boys and girls. Given today's cultural attitudes, it is not enough merely to open the doors. Only a few highly motivated girls are likely to be daring enough to seek entry into fields that have been up to this time exclusively for men. It will be necessary to actively recruit girls in the trade and technical fields with the full cooperation of guidance counselors.
3. Community education programs should be established to enlighten parents on the need to open up career opportunities for women.
4. In-service training must be provided for teachers, guidance counselors and other specialists, paraprofessionals and administrators to prepare them to take an active role in encouraging women to seek careers in whatever fields are best suited to their individual talents.

Superintendent of Public Instruction
State of Washington, Bulletin (#63-72),
July 1972, pp. 3-4

Program Planning

The needs assessment indicated that sex stereotype-free materials in career education were of prime importance. In evaluating a substantial number of commercially-produced career education materials, it was found that few materials dealt equitably with females and males in speaking to their future participation in the work world strictly on the basis of an individual's skills, abilities, interests, and needs. Project Equality was created to fill this void -- to provide materials which were free of sex stereotyping and which demonstrated to students that people of both sexes could perform a variety of job tasks.

Project Goals and Objectives

The goals of Project Equality were to expand (1) girls' perceptions of occupations open to females and those open to males, and (2) boys' perceptions of occupations open to both sexes. The following objectives were developed to meet these goals.

Objective 1: Elementary students in grades K-6, where any one of six occupational simulation packets is used appropriately, will have expanded their perceptions of job options open to females and males.

Objective 2: Elementary students in grades 1-6, where the Yellow, Blue, and Red Book is used appropriately, will have expanded their perceptions of job options open to females and males.

Objective 3: Elementary students in grades 1-6, where the Many Thousand Words - Work Pictures notebook is used appropriately, will have expanded their perceptions of job options open to females and males.

Measure of Achievement

Project Equality adapted the Who Should test from work originally done by Dr. Lynne Iglitzin of the University of Washington. This test was used with all materials and attempted to measure changes in students' perceptions of occupational sex roles. There are two forms of this instrument: one for grade levels K-2, and the other for levels 3-6.

The K-2 form has 26 questions which are read to students by the teacher. The students have only the answer sheet, not the questions. Two sample questions are: "At home, who should wash dishes? Men? Women? Or both?" "Who can use a hammer better? Boys? Girls? Or both the same?" All questions are answered by the students by circling a picture of a boy, or a girl, or a boy and girl standing together.

The grades 3-6 form of the test has four parts with a total of 41 items. As in the K-2 form, teachers read the questions aloud to students. Part I lists 19 occupations such as carpenter and nurse; students circle "man," "woman," or "both" to indicate who should do the job. Part II lists six jobs done in class such as "eraser cleaner"; response options are the same as for Part I. Parts III and IV list jobs done in the home. Response alternatives to Part III are "father," "mother," or "both," and response alternatives to Part IV are "men," "women," or "both."

MATERIALS AND ACTIVITIES

Development of Materials

The major thrust of Project Equality has been the reduction of sex role stereotyping in students at the K-6 grade levels through use of materials which counter such stereotypes in both occupational and home sex roles. To accomplish this purpose, the staff of Project Equality have developed three sets of materials, which may be used independently or in combination. Each set of materials was designed to provide students with nontraditional sex role models. The development of materials extended over the project's first three years of operation (1973-76), with final field testing taking place during the 1977-78 school year.

Set 1: Occupational Simulation Packets. These packets are designed as a hands-on career education activity for elementary students based on the "isolated skills concept," which was drawn from techniques used in vocational rehabilitation. Each packet focuses on a particular skill and then uses that skill in a variety of hands-on work activities within the classroom. All the materials the teacher needs and all the materials the students use are packeted within a box or multiple boxes with very clear teacher directions.

The occupational simulation materials consist of six separate packets, each of which may be used alone. Two packets have been developed for use with grades K-2 students, two for students in grades 3-4, and two for students in grades 5-6. Each packet singles out a saleable work skill required for a wide variety of jobs and already possessed, in some measure, by the student. As students apply their saleable skills in a variety of job-related activities, it becomes clear that (a) a skill is not dependent on sex, and (b) a skill required for one type of work is often transferable to another type of work. Discussion questions for teacher use with the class also emphasize these two points. Each packet, in turn, is described below.

- Color Discrimination -- This packet focuses on the skill of color discrimination and is used at grade levels K-2 since the identification of primary colors is something teachers at those grade levels usually handle. The skill of color discrimination is required in such occupations as interior decorator and electrician and many others. Within this particular packet, students go through three different jobs. The first is that of a factory worker; many factory workers must deal with small items as well as color-coded items. So the students sort telephone wires by their colors and, of course, most of them can do it. They feel very successful; it's a fun, short activity. Another activity in this packet is sorting socks by color. Anyone who works in a store whether as a clerk in a grocery store or as a clerk in an apparel shop, is going to do many things by color. The third job explored is interior decorator. Students use color chips, formica chips that often are available through a variety of sources free of charge, and pieces of wall paper to match colors as the interior decorator.

The time expected to complete this packet is 2-3 hours over a 2-3 week period. Accompanying the packet are the following materials.

Materials List

32 bundles of wire, each wrapped with tape, to include:

16 sets of 4 blue, 4 white, 4 red, 4 gray
16 sets of 4 yellow, 4 orange, 4 purple, 4 black

6 bundles of socks, each bundle to include:

2 red, 2 blue, 2 green, 2 brown, 2 orange
Total - 10 socks or 5 pair in each bundle. Bagged.

32 laminated wall paper sheets

11 bundles of color plates to include:

20 different colors in each set or bundle

1 wire bundle with 10 colors, teacher sample

1 picture each of the following:

Factory Person working with wire
Female Mechanic
Male Store Clerk
Interior Designer

1 picture each of the following:

White background with 3 circles: 2 pink, 1 black
Dark Blue Background with Brown Number 1
Green Background with Red Number 2
Yellow Background with Orange Number 3

● Crawling and Squatting -- Also used at grades K-2, this packet emphasizes the skills of crawling and squatting and demonstrates how they are needed in certain occupations. There are times when nearly everyone has to crawl or squat on the job, e.g., to pick up things dropped on the floor. The main emphasis in this packet is on jobs that require these skills as a regular part of the various job tasks. Some of the activities involve squatting, some crawling and some both. At that age level, teachers are trying to teach youngsters physical mobility -- to get hands and feet going in the right direction. So, in the crawl and squat packet, students go through a carpenter experience, a plumber experience and a stock clerk experience.

The time expected to complete this packet is 2-3 hours over a 2-3 week period. Accompanying the packet are the following materials and specifications.

Materials List

Stock Clerk

- 6 stock clerk name plates
- 10 merchandise signs
- 4 boxes of grocery packages
- 4 four-foot boards for shelves

Carpenter

- 6 carpenter name plates
- 4 pair safety glasses
- 4 containers of large head nails
- 4 hammers
- 1 piece of wood for hammering
- 1 ball yarn

Plumbers

- 6 plumber name plates
- 4 clamps for mounting stationary pipe to table
- 2 plumbing-pipe assemblies

General

- 6 aprons
- 15 clamps for apron name plates
- 2 tunnels
- 3 laminated water color posters

Teacher needs to provide:

Blocks or books or chairs for forming the outside of the house -- and also to create shelves for the stock clerk activity.

The teacher's guide for this packet requires that the teacher, in advance of the store clerk activity, set up shelves on blocks, books or chairs and then stock the shelves with grocery items and place signs by the items. The activity is done with six students at a time. The first three students have their attention directed at the merchandise signs that are placed above the shelves, and are told that these signs help the customers find what they want to buy and help stock clerks know where merchandise should be placed. Each student is given a box of food containers to be placed on the shelves, looking for the merchandise signs that show where the food containers should be placed. Once these students have stocked the shelves just as a store clerk would do, the teacher proceeds to move the merchandise signs as a store manager might do. Then the teacher tells the other three students that sometimes stock clerks must move items from one shelf to another when the store manager wants to change merchandise from one location to another. Each student is directed to take a row and to put the items

in the new location by following the merchandise signs. Finally, all six students are asked to remove the items from the shelves and place them in boxes in an area representing a warehouse since sometimes stock clerks are asked to take everything off of the shelves and send the merchandise back to the warehouse. Throughout this entire activity, it is necessary for the students to be able to crawl or squat to stock low and deep shelves with products.

Before beginning the packet's carpenter skill activity, the teacher is directed to construct the outline of a house using kindergarten blocks, chairs and tables and to place yarn through the house for the carpenters to follow. A diagram for the house maze is included in the packet. To experience the crawling or squatting skills that a carpenter needs to have to do his job, each student puts on an apron with "carpenter" on it and safety glasses. Each student carries a hammer and has a box of nails in the apron pocket. Each student must finish hammering the nail into the wood before the next student enters the building. The student follows the yarn through the house to get to the place where he or she hammers a nail into a board and follows the yarn to the exit of the house. Once that student is through with the task, she or he will give the apron, glasses, hammer and container of nails to the next student in line.

Prior to starting the packet's plumber skill activity, the teacher is required to mount stationary pipe (with goosenecks) underneath the top of a table using clamps and to arrange tunnels leading up to the table. Then the students are told they will have an opportunity to use the skill of crawling or squatting by doing part of a plumber's job. The activity begins with the first student putting on an apron with the word "plumber" on it. The student is then directed to crawl through the tunnel and under the house until reaching the pipes. After unscrewing designated parts of the pipe assembly, the student puts those pieces on the floor and crawls back from under the house and through the tunnel to get outside. The second student crawls through the tunnel and under the house until reaching the pieces of pipe on the floor. Picking up the pieces, this student screws them back onto the original pipe assembly and returns crawling through the tunnel to the outside. The same taking apart and putting back together sequence is continued until all students have had the experience.

● Assembling -- Used with grades 3-4, this packet stresses the skill of assembling an item in a specific sequence. Assembling things in order is often done by factory workers and by workers in hardware stores, who often have to assemble things to show to people. So if students can follow instructions and assemble things in order, they have a definite and employable skill.

The estimated time to complete this packet of instructional activities is 2-4 hours over a 3-week period. The objective of the activities is to assemble in sequence eight unassembled items following printed instructions. Thirty minutes are allotted for each group of 16 students, two at each of the eight assembly stations. Activities at these stations include assembling an automobile mirror, a ball point pen, a bicycle bell, a bicycle reflector, a paint roller, a wallet and card holder, a watercolor set, and a water supply pipe valve. At each station, there is a laminated direction card, necessary tools such as a screwdriver, a tray to keep parts in during assembly tasks, a picture illustrating the assembly tasks, and a student job sheet for recording the tasks each student performs.

It is suggested that the students work in sexually integrated pairs (girl and boy). Capable readers can help others or one student can steady and hold items to assist his or her partner in assembly jobs. Students are told to alternate jobs. On the first task, one would be the assembler, the other, the assistant and inspector. Roles are then reversed for the next item with each student actually assembling four items. The student in the inspector's role may also disassemble and return parts to the container for the next pair.

● Creativity -- Also used with grades 3-4, this packet focuses on the skill of creativity, which is required in such occupations as artist, weaver, and architect. The packet deals with the creativity skill that is needed to create things from scratch -- new kinds of visions, whether it is a poem, or whether it is a piece of tapestry.

The estimated time to complete to complete the activity is 8-10 hours over a 3-4 week period. Activities include making puppets, weaving wall hangings and making prints, and are designed to be used by a classroom of about thirty students. It is recommended that the class be divided into thirds, each group doing a different activity at the same time for a duration of one week before rotating to the next activity. For each station, there is a student direction card. To illustrate the nature of the activities, one of the student direction cards is shown on the next page.

PRINTING

1. Cut shapes from light weight chip board.
2. Arrange shapes on heavy weight chip board.
3. Glue shapes down. Let dry.
4. Draw a line design on another piece of heavy weight chip board.
5. Trace over line design with Elmer's glue. Let dry.
6. Shellac both designs. Clean brushes in alcohol.
7. Place a small ammount of Printoleum on 9"x12" tag board, and add a teaspoonful of tempera. Mix.
8. Roll brayer back and forth until mixture makes a crackling sound, then roll ink on design.
9. Lay paper on inked design and rub.
10. Lift print and let dry. Repeat steps 8, 9, and 10.

Teachers are cautioned that unless the creativity skills are combined to stimulate increased awareness in students, they will be just skill activities without a focus for reducing sex stereotyping. Teachers are urged to make every effort to create a total environment of a compensatory nature involving women heroes, women and men modeling non-stereotyped activities, and awareness activities involving values clarification. As examples, it is suggested that: (1) the creativity skills can be combined to provide a unit on women heroes, (2) the puppeteers can devise a play about a famous female hero from the past, (3) the printmakers can print the cover for the program, and (4) the weavers can provide the backdrop for the puppet play by combining efforts on one large scenery hanging.

● Oral Persuasion -- Used in grades 5-6, this packet emphasizes the skill of oral persuasion, which is employed in occupations such as lawyer, salesperson and politician. The objective of this packet is to increase students' awareness by showing that oral persuasion is a skill, which is used in many different jobs and which people have in varying degrees unrelated to either their sex or race. The estimated time to complete the packet is 8-10 hours over a 2-4 week period.

The packet tries to reinforce children who cannot read well but can listen and express themselves orally. Many jobs require good oral expression skills or persuasion skills. Educators, career education directors, as well as used car salesmen, etc., use these skills. In this packet, students go through a trial lawyer experience, a door-to-door salesperson experience, and then try their hand at being a radio announcer. The materials list for the three activities is shown on the next page.

Materials List

Trial Lawyer

- 5 Prosecuting attorney cards, 7 copies of each for a total of 35 cards, laminated.
- 5 defense attorney cards, 7 copies of each for a total of 35 cards, laminated.
- 5 title identification cards, 7 copies of each title for a total of 35 cards.
Titles: Prosecuting Attorney, Defense Attorney, Juror #1, Juror #2, Juror #3
- 7 trial lawyer student record sheets

Door-to-Door Salesperson

- 1 soap box
- 1 brush
- 1 circus ticket
- 1 pan

Radio Commercial

- 12 sets radio commercial scripts, laminated
- 12 radio commercial student record sheets
- 1 sound effects record

Teacher Needs to Provide

- 1 or more cassette tape recorders and tapes
- 1 or more record players
- 1 encyclopedia

To carry out the Trial Lawyer activity, the teacher is directed to divide the class into as many groups of five people as possible (one or two groups may have six people) and to make sure that each group is integrated by sex and race. Although there are two alternative methods of presentation from which the teacher may choose, this activity basically gives each student a chance to use the skill of oral persuasion as a lawyer. Each person, in turn, is a defense and prosecuting attorney as well as a juror. Following the activity, students have an opportunity to discuss such questions as: If women and men have the necessary persuasive skills, does it make any difference if an attorney or trial lawyer is a woman or a man? Why? Why not?

With the door-to-door salesperson activity, the teacher is told to divide the class into five groups of approximately equal size, again making sure that each group is integrated by sex and race. After giving each group one of the props -- soap box, brush, circus ticket, pan, etc. --, the teacher explains to the class that some of them are going to be door to door salespersons and that the prop given

to them is the product they are to sell. After spending 15 minutes thinking of as many reasons for buying their product as possible, each group chooses one of its members to be the salesperson and another to be the prospective buyer of a different group's product. The activity begins with a salesperson from one group and a customer from another role-playing the sales scene in front of the room. Each group is allowed to carry out their role playing until the customer says either "yes" or "no."

To experience the oral persuasion skill used by a radio announcer, the class is divided into groups of 2-3 people each (integrated by sex and race) and each group records its own commercial. After reading a set of radio commercial scripts, the group picks one they want to record and rehearses it before making the actual reading. A sound effects record is available if the group chooses to use it. Later, recordings the students have made are played back to the entire class and discussion of the persuasive quality of each recording takes place. The final discussion question is: Does persuasive skill depend on your being a girl or boy? Why? Why not?

● Measuring -- Also used with grades 5-6, this packet employs math concepts while stressing measuring skills found in different occupations. Students go through six different work stations using measuring skills. One is, for example, an employment counselor where students use a stop watch, a measurement skill. A shoe salesclerk uses a measuring device when he or she finds out the size of someone's foot. A person who works in a grocery store, whether as a checker or the manager, must know how to read a scale. So, students weigh fruit on a scale.

The estimated time to complete the packet is 3-6 hours. In this packet, there are descriptions for six activity stations, one for each of the following occupations: tailor/seamstress (tape measure), employment counselor (stopwatch) carpenter (10-foot tape), grocery store manager (scale), shoe salesperson (shoe stick), and advertising layout person (ruler). There are student instruction sheets that are located at each of the measuring activity stations and that show how the tools are to be used. The tools and other materials to be used at the different activity stations are shown on the next page.

Materials List

Tailor/Seamstress

- 1 pella pattern
- 1 60" tape measure

Employment Counselor

- 1 stop watch, in plastic box
- 1 dexterity board
- 24 pegs

Carpenter

- 1 15"x18" finished masonite piece
- 1 16"x21" finished masonite piece
- 1 10' tape measure

Grocery Store Manager

- 2 plastic bags of fruit:
 - apples and oranges
 - tangerines and peaches
- 2 plastic bags of vegetables:
 - green peppers and avocado
 - tomato, lemons and limes
- 1 food scale with bowl-like container

Shoe Salesperson

- 3 plaster feet, one blue, one green, one yellow
- 1 shoe measuring stick

Advertising Layout Person

- 1 12" ruler
- 1 piece of red paper
- 14 letters "Merry Christmas"
- 2 pictures illustrating advertisement layouts (laminated)

Before students start proceeding through the activity stations in this packet, teachers are directed to furnish them with an orientation to the following concepts. Measuring is a part of many jobs. Some workers measure something every day, and often measure several times during the day. There are many different measuring tools, and there are many different things to be measured. Some workers use several different measuring tools. People measure height, weight, temperature, time, volume, and circumference as a part of different jobs. Accuracy is very important. It is necessary to get close to the tool when taking a measurement.

After completing all six activity stations in this packet, it is expected that students will have perceived the skill of measuring as a non-sexist skill.

In summary, the isolated skills concept employed in these six packets achieves several things. It starts girls and boys thinking about jobs in terms of the skills required rather than the sex of the worker. It shows students that they can acquire a variety of skills, and it shows them how these skills can be used in many different kinds of jobs.

Set 2: Yellow, Blue, and Red Book. Used with grade levels 1-6, this three-ring note-book contains a large number of ideas for short-term activities (10-20 minute activities, 20-40 minute activities, and 40 minute plus activities), which help teachers and students to expand their awareness of sex-role stereotyping, and broaden their view of sex roles in the home and of appropriate job opportunities available for all qualified people. The notebook is divided into time sections; within each time section there are short-term activities designed to be used independently or in a selected sequence. Each activity card indicates the subject(s), the suggested grade levels, and the objectives for the activity.

The Yellow, Blue, and Red Book can serve as a catalyst for additional activities in the classroom which aid and enrich students' options for full participation in the work world. This notebook is intended to be a growing piece of curriculum material. Those schools wanting to adopt or adapt Project Equality materials can add to the notebook as new commercial or teacher-developed materials are available. Pertinent articles and local resources can easily be placed in the appropriate sections of the three-ring binder. If all the activities presently contained in the binder were implemented with students, the time required would be from three to five hours over a three-week period.

The following is a portion of a 10-20 minute activity card from the Yellow, Blue, and Red Book.

LANGUAGE ARTS
GRADES 5-6, ADAPT for 3-4
10-20 MINUTE ACTIVITY

WATCH YOUR LANGUAGE

OBJECTIVES:

1. To become more conscious of language connotation.
2. To decrease sex role stereotyping.

SEX ROLE STEREOTYPING -- is the unquestioned and unchallenged assumption by an individual or a group that certain actions, abilities, interests, behavioral patterns, etc., are natural and innate to one sex, but not the other. Language is a reflection of our thoughts and values, and a powerful tool in the learning process. The use of sex role stereotyping in language is referred to as SEXIST LANGUAGE. Sexist language can be identified when the language narrows participation or reference on the basis of sex. The following could be considered sexist language:

A MAN OF THE PEOPLE
ALL MEN ARE CREATED EQUAL
A ONE-MAN SHOW
A MAN FOR ALL SEASONS

A TWELVE-MAN TEAM
A MAN-ON-THE-STREET INTERVIEW
ONE MAN, ONE VOTE
THE MAN FOR THE JOB

Many of these terms evolved when women did not share in all aspects of life; however, that is certainly not the case today, nor does it fit into projections for the future.

To start this "Watch Your Language" activity, teachers are directed to select two generic traditional terms or phrases from the list on the card or another source and list them on the chalk board. Students are to write down as many other ways as they can think of to state the concept expressed by the term or phrase on the board. The students then report back to the class their alternative wording and list them on the board, explaining their new choice of words. This activity can be repeated from time to time to increase the students' awareness of the words they use and the words that are used around them.

Below is a portion of a 20-40 minute activity card from the Yellow, Blue, and Red Book.

SOCIAL STUDIES

GRADES 3-6, ADAPT for K-2
20-40 MINUTE ACTIVITY

RESPONSIBILITY AND CARING IS EVERYONE'S JOB

OBJECTIVES:

1. To develop comparison/contrast skills.
2. To develop discussion and reasoning skills.
3. To increase awareness that tasks should be assigned and carried out by ability and willingness, not by sex.

ACTIVITY

DAY ONE - 15 MINUTES

Divide the class into six groups: two all female, two all male and two mixed. Have each group select a recorder and supply them with large pieces of paper. Have each group compile a list of tasks usually associated with males (about 5 minutes). Have each group compile a list of tasks usually associated with females (about 5 minutes). Display the lists around the room.

DAY TWO - 15 MINUTES

Discuss the lists. Suggested questions:

1. How do the lists differ? How are they the same?
2. Can a boy accomplish the tasks on the girls' list?
3. Can a girl accomplish the tasks on the boys' lists?
4. How many people in this class do the tasks on both lists?
5. Are there some tasks that some people think you should do just because you are a boy or girl?
6. Why do you think you chose the tasks you did for girls? For boys?

Teachers are cautioned when beginning this activity to be aware of any pattern that might emerge in the single sex groups. In addition, teachers are alerted to assess the results of the group activities by asking questions such as: Are activities for girls related to the home? Keeping clean? Doing light physical work? Are activities for boys related to the outdoors? Do their tasks

involve physical strength and muscular exertion? Is it permissible for a boy to get dirty doing a job, but not a girl?

Here is a portion of a 40 minute plus activity card from the Yellow, Blue, and Red Book.

LANGUAGE ARTS
GRADES K-6
40-MINUTE PLUS ACTIVITY

EXPERIENCING A DAY OF LANGUAGE REVERSAL

OBJECTIVES:

1. To explore the implications of using exclusive male language patterns.
2. To decrease sex role stereotyping

ACTIVITY

As a class project, reverse all pronouns and word usage, whether in reading or speech, which depict the sex of the person. Substitute "She" for "He" and female words for all inclusive generic terms for people, i.e., use "womankind" instead of "mankind." The teacher should make a special effort to impress upon students that the female terms which are used to mean everybody--REALLY MEAN EVERYBODY!

Following this activity, teachers are encouraged to discuss with their students how the use of the reverse words made them feel. Did certain students feel left out because the words to depict females were used more often, even though students were told that the words mean everybody? Did certain students feel somewhat better to be included in the language on a regular basis? Are the words we use important? Additional discussion questions included: Do we need to be concerned with clearly identifying who we are talking to -- students, just boys, just girls, or people in general? Should new pronouns be established to be more inclusive of everyone?

Set 3: Many Thousand Words - Work Pictures. This three-ring notebook, used with grades 1-6, contains a set of 8 x 10, black and white pictures of women and men, and girls and boys in a variety of non-stereotyped work settings at home, school, and in the community depicting various skills and abilities. The Many Thousand Words contained in the Work Pictures are intended to communicate a new vocabulary and educational experience to students. A key assumption is that students' perception of the world of work can be greatly expanded through visual communication, that seeing is a large part of believing. The Many Thousand Words - Work Pictures are assembled to complement and to supplement already existing pictures of females and males engaged in traditional jobs and activities by showing similar people engaged in nonstereotyped jobs and activities.

In discussions following use of the Work Pictures with students, teachers

are encouraged to keep in mind several concepts. First, personal choices are not limited by sex. Skills and abilities are not predetermined by sex. Traditional viewpoints of acceptable work for women and men are changing. Some signs of change include: boys taking home economics classes, girls taking auto mechanics and wood shop classes, increasing numbers of men entering nursing, and more women becoming doctors. Second, skills learned in the present are related to future job skills. When the pictures depict situations the students may have experienced, teachers are urged to ask if anyone in the class has ever done that job at home or in the classroom, and to discuss various skills students are now learning or using in terms of future job skills. Finally, teachers are expected to stress that everyone is learning survival techniques for jobs done at home, whether it is caring for their clothes, cleaning up after themselves, or food preparation. Work at home helps students to develop self-reliance and confidence in their ability to take care of themselves.

To aid the teacher in focusing on the importance of all people engaged in many types of labor, there are a few suggested discussion questions on the back of each picture. The format for the questions on the back of each picture is illustrated by the following questions from the Newspaper Carrier picture in the Work Pictures - Children section of the notebook:

NEWSPAPER CARRIER

1. What do you think this girl is doing?
2. What makes you think so? How can you tell?
3. What skills do you think might be required to be a newspaper carrier?
4. Can both girls and boys learn to be newspaper carriers?
5. Do you know of anyone who is a newspaper carrier?
6. Name some other jobs this newspaper carrier could do with her skills.

and by the following questions from the Nurse picture in the Work Pictures - Adults section of the notebook?

NURSE

1. What do you think this man's job is?
2. What makes you think so? How can you tell?
3. What skills do you think might be required to be a nurse?
4. Can both women and men learn to be nurses?
5. Do you know of anyone who works as a nurse?
6. Name some other jobs this nurse could do with his skills.

Supplementary Commercial Materials. To help deal with the problem of biased materials, the project came up with a traveling media display. There is one for elementary, one for junior high and one for high school. In each case, it consists of materials that Project Equality has reviewed and found to be sexually and racially non-biased, or useful in an affirmative sense. Each display has about 100 items, including books, film-strips and other materials. Arrangements are made with the librarians at the beginning of the year to schedule the display into the various schools. At the elementary level, the schedule is fairly rigid because the teachers typically do not teach subject matter courses. Consequently, the elementary schedule is arranged by schools. As many as from 7-9 schools can be served with one display. At the junior and senior high levels, where a teacher might be doing a unit on American History and wants to include a 2-3 week unit on the role of women in American History, arrangements are made for the display to be at the school for that time and the teacher has much of the collection in the room.

A fourth grade teacher using Project Equality materials remarked:

The media display has over 120 different items, largely books showing boys and girls in more equal roles, non-stereotyped roles. I use it in my classroom just as a supplemental reading center. The children go through the books and read the materials. Some of the stories are really good. After we got that media display all set up in our room and had it there for a few days, one of my boys came up and asked, "How come these are all girl books?" I asked him what made him think they were all girl books, and he said, "Well, the stories are all about girls and women."

I didn't say "yes, you're right" or anything like that. I said "Let's do a little experiment."

We got about 10 different reading books that we had had in the room for some time. We counted the number of pictures of boys and the number of pictures of girls. Not necessarily what they were doing, just the number of times a picture shows a boy or a girl. We were getting like 400 pictures of boys and 130 pictures of girls. I asked him about those books, if those were all boy books. The other kids really picked up on that. Everybody went through two or three books. Then we went back to the media display and we found out that the media display books were more balanced, as to the depiction of boys and girls in the pictures. We didn't carry it any further as to what they were doing, whether it was an active or passive activity being shown. It was a satisfactory answer for him and it was a good learning experience for everybody.

Common Characteristics of Materials. All Project Equality materials have been designed to have the following characteristics:

- They provide content material which can expand students' perceptions of occupations open to females and to males.

- They fit within the context of subjects the teacher is already expected to cover in the classroom.
- They are self-contained.
- They are easily adapted to different classroom settings.
- They do not require any additional teaching or support staff members for implementation.

Teacher Reactions

In general, teachers were very responsive to incorporating Project Equality materials and related activities into their classrooms. The following are comments of a first grade teacher in the Highline District:

It's very easy to incorporate this [Project Equality materials] in first grade because at the beginning of the year you are teaching units about the home and family and also about jobs at school. We just use this as part of our reading vocabulary development. We talk about what jobs Father does and what jobs Mother does. We introduce the words "work" and "skill," and we talk about the responsibilities at home and who should be responsible for the different jobs at home. We then go through the same thing at school, and talk about who should clean the erasers and who can pass the papers, etc. So, it's very easy to introduce this as part of the basic skill program of reading development.

We found that this year there were some children who had been in the program last year, and were very, very open to the ideas of equality and that everyone can share jobs and responsibilities. I could see a noticeable difference between these children and children who came from another school and did not have this opportunity. First graders are very open to suggestions from their teachers. Just about anything that I suggest to them they will accept, and take that as their own idea.

I think the children are more accepting of each other. If someone expresses an interest in something that has been stereotyped in the past, the other children don't react to it.

We were reading a story about "The Gingerbread Boy." I had explained to the children that I didn't like this particular book, although it was a brand new book. It had so many pictures of boys and all the stories were about boys. There were so few girls in there that I felt it was unfair to girls and particularly it was unfair to our reading group which was split just about half and half. So, we decided that we would change the story of "The Gingerbread Boy" to "The Gingerbread Girl." This was kind of a voluntary thing on the part of the children. They picked up on it and they chose to change the pronouns from he to she, etc. It was so natural that not one of the children in the reading group questioned that we were doing that. They just seemed to accept it.

Below, a fourth grade teacher in the Highline District reports on the impact he observed of materials from the traveling media display:

Some of the things we do with careers and reducing sex-role stereotyping are through watching film-strip kits. In the film-strip kit, people of both sexes are doing jobs, some in stereotyped roles and some in non-stereotyped roles. I always ask the children if a woman could do that job or if a man could do that job, the opposite of whatever is being shown on the film strip. The children seem to think that it really doesn't make any difference if you're a man or a woman as to what type of job you do, with a very few exceptions.

I notice as a result of using the Project Equality materials less animosity between the boys and girls. I used to see that an awful lot -- "Oh, that's boy stuff" or "Oh, that's girl stuff." But I don't see that as much now. I think the outlook of what a lot of the girls would like to be has broadened.

PARENT AND COMMUNITY INVOLVEMENT

Parent and community involvement was not an essential feature of Project Equality during its implementation in the Highline School District and need not be in districts adopting the project. However, several community agencies were involved in the preparation of the initial grant application submitted for federal funding. These organizations were: (1) National Organization of Women, Highline Chapter; (2) League of Women Voters; (3) Alternative Schools Committee; (4) Women and Girls in Education; and (5) Evergreen High School Girls Club. The extent of involvement included participation in the writing committee, critique sessions, and two-way communications with individuals representing these organizations. Additional involvement from the Highline community during the development of the grant application included a survey of 386 girls' opinions regarding career needs of girls which was sponsored, typed and summarized by the Evergreen High School Girls' Club and which was included as a part of the "Need" statement of the application. These activities and communications with these groups were helpful during the early phase of the project; however, after developmental tasks were completed and the instructional materials were ready for use, the implementation phase of the project did not require active parent and community involvement.

The Project Equality staff recommends to adopting districts that provision be made to disseminate information about Project Equality before implementing the project with students. Also desirable are periodic news bulletins on project activities and the availability of avenues through which members of the community may share their interests and concerns about the project with school district officials. Desirable supportive attitudes from the community include awareness of:

- The school district's effort to provide a program for students designed to reduce sex-role stereotyping, the objectives of Project Equality, and the location of developmental sites and the personnel involved.
- The highlights of the project's initial year of implementation.
- Needs for assistance from community agencies or citizens in providing the students with exposure to or field experiences in non-stereotyped careers.

STAFFING AND MANAGEMENT

Overview

To plan, develop, carry out and evaluate a sex stereotype-free career education program in the Highline School District, Project Equality operated with three people: a director, an information facilitator, and a secretary. However, for school districts interested in adopting Project Equality, a staffing plan involving a part-time director and a part-time secretary has proven to be satisfactory. Project Equality staff recommend that an adopting school district consider these staffing requirements and activities in the following areas: planning, instructional material use, evaluation of student change, and feedback sessions with a consultant.

Planning. In June, preceding the implementation year, a planning session would be held with district administrators and the Project Equality staff. The results of this session would be the selection of one teacher at each grade level in three elementary pilot schools and the identification of necessary activities in the implementation sequence; workshop dates, material use, test dates, feedback session and assignments of responsibilities would be outlined.

Use. Project Equality curriculum packets would be acquired and used at a two-day inservice training workshop for the pilot teachers, principals and administrators. With adequate implementation knowledge, teachers would use the Project Equality materials in their classrooms according to schedule.

Evaluation. The "Who Should" test would be given to students before and after they use Project Equality materials. Reports of the "Who Should" test results would be provided and communicated to pilot teachers, principals and administrators in the manner identified at the planning session.

Feedback. During November and December and again in April and May, feedback sessions would be held with pilot teachers, principals and administrators.

Appropriate steps for incorporating the Project Equality curriculum packets into the existing educational resources system, available to all elementary educators in the school district, would be outlined as well as how the program could be further implemented in other elementary classrooms.

Staffing

The following chart shows the key requirements for the staff positions of part-time director and part-time secretary.

<u>Staff Functions</u>	
Project Director	● Organize and direct all planning activities to accomplish the project goals and objectives.
	● Coordinate staff, teacher participation and program components.
	● Organize needed workshops for district personnel and parents.
	● Direct budget expenditures.
	● Coordinate the collection of evaluation data.
	● Work to infuse the goals and objectives of Project Equality into the existing curriculum.
Secretary	● Work with teachers in dealing with the reality of work for females and sex-role stereotyping.
	● Maintain and update the traveling media display.
	* * *
	● Carry out general office duties.
	● Keep project records.
	● Type reports and correspondence.
Secretary	● Assist people seeking knowledge of the project or of developed or acquired project products.
	● Aid the director as may be necessary to further the goals and objectives of Project Equality.

Management Strategies

Project Equality staff recommend that the following list of implementation activities and completion dates serve as a general management outline for potential adopters of Project Equality.

<u>Implementation Activities</u>	<u>Completion Date</u>
1. Pilot schools and teachers are selected, notified and confirmed. Evaluation design is formulated. Workshop, material use, testing, district information feedback session dates outlined. Areas of responsibility outlined and assigned. Known printing requirements outlined and scheduled. Curriculum materials ordered. August workshop outlined. Housing and delivery system for Project Equality packets identified.	June
2. Workshop format and printed material requirements finalized. Who Should test packets ordered and printed.	July
3. Workshop materials printed. Two-day workshop held. Housing and delivery system for Project Equality packets becomes operational.	August
4. Who Should pretest administered. Project Equality packets used in the classroom. Information concerning Project Equality provided through district publications. Pilot schools inform parents of Project Equality curriculum packet use.	September
5. Who Should posttests administered. Project Equality packets used in the classroom. Prepare for Feedback Session 1.	October
6. Who Should pre- and posttests processed. Project Equality packets used in the classroom. Preparation for Feedback Session 1 finalized.	November
7. Feedback Session 1 held. Review Feedback Session 1, make identified program changes. Project Equality packets used in the classroom.	December
8. Who Should pretest administered. Project Equality packets used in the classroom.	January
9. Who Should posttests administered. Who Should pre- and posttests processed. Project Equality packets used in the classroom.	February
10. Prepare for Feedback Session 2. Project Equality packets used in the classroom.	March

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|---|-------|
| 11. Who Should tests administered on follow-up basis and processed. Preparation for Feedback Session 2 finalized. | April |
| 12. Feedback Session 2 held. Review Feedback Session 2. Evaluation report outlined. Final report outlined. | May |
| 13. Final evaluation report compiled. Final report completed. | June |

Inservice Training

If new materials or strategies are to be used, teachers and other staff must be effectively trained in how to use them so that they become part of a school district's fabric. The basic inservice training workshop for Project Equality is held over a two-day period of time, for approximately six hours per day. The inservice training workshop examines the need for new approaches in curricular design and teaching strategies, and stresses the following themes: (1) the expanding role of women in the world of work, (2) cultural stereotyping of girls into restricted roles, (3) curricular stereotyping of materials and course content, (4) recommended directions for change, and (5) essentials of Project Equality implementation. Further detail on these topics is provided in the following chart.

<u>Inservice Workshop</u>	
<u>Themes</u>	<u>Content</u>
Women's Expanding Work Roles	Longer life span, new legislation restricting sex-identification of jobs, and a reduced birth rate have increased the length of time women will be working and have made more varied work roles a definite probability.
Cultural Stereotyping	Cultural and social influences have restricted girls from performance tasks and tended to concentrate on the home-maker aspects of women's activities. This, in turn, limits the training and eventual competitive potential of girls.

Themes

Content

Curricular Stereotyping

Schools generally make little or no attempt to provide alternatives in this channeling process. Rather, the courses and materials tend to accent the stereotyping process. Girls are offered fewer performance or task-oriented learning activities and are exposed to fewer successful models; they are bombarded with materials which portray the "typical" woman's role.

Directions for Change

Based on several studies, the Women's Bureau of the U.S. Department of Labor has made the following recommendations regarding the educational programs for girls and women:

1. Curricula in education at all levels should be made relevant to the changing role of women today, and textbooks and materials should reflect non-stereotypical images of women and girls.
2. Educational television and other media and materials should be developed to improve the self-image of girls and women as rational, mature human beings.
3. Girls should be encouraged to enter a wider range of skill training programs, including apprenticeships.
4. Vocational programs for girls should be instituted in all junior high schools.
5. Secondary schools should offer special courses on the roles of women in our society.
6. Textbooks, including preschool readers, should contain role models of women and a variety of lifestyles.

Essentials of Implementation

1. Acquaint the participants with the Isolated Skill Concept used in the Occupation Simulation Packets;
2. Acquaint the participants with the Media Display, Yellow, Blue and Red Book and Many Thousand Words - Work Pictures;
3. Review procedural and individual district requirements for implementing Project Equality; and
4. Acquaint the participants with the evaluation design to determine the impact of the project upon participating students.

COSTS

Presently, Project Equality members are available as consultants to train local district staffs to use materials with students in the classroom. Project staff suggest that adopting districts plan to involve the following personnel: the district career education director and/or curriculum director; an elementary principal; an elementary school librarian; and six elementary teachers. A district adopting all Project Equality materials, though not planning to purchase commercial materials to assemble the Media Display, should plan to assume costs for the following:

- A two-day training session for staff members implementing the materials
- Two half-day followup meetings after the training session
- Adoption of Occupation Simulation Packets
- Adoption of the Yellow, Blue, and Red Book
- Adoption of the Many Thousand Words - Work Pictures
- Evaluation consultation for pilot testing of materials

Approximate Costs for Adoption of Project Equality Materials (Excluding Contracted Services for Training Workshops and Follow-Up)

<u>Staff</u>	<u>First-Year Implementation Costs</u>
Project Equality Director	\$1,800
Secretary	1,000
<u>Staff Development</u>	
District Implementation Team	\$1,400
1 Career Education Director	
1 Elementary Principal	
1 Elementary Librarian	
6 Elementary Teachers	
<u>Materials</u>	
Occupational Simulation Packets & Kits	\$1,495
Yellow, Blue and Red Book (5 copies)	250
<u>Many Thousand Words - Work Pictures</u> (5 copies)	200
<u>Contracted Services</u>	
Evaluation consultation for pilot testing of materials - 2 days @ \$100/day	200
	<u>\$6,345</u>

The estimated costs for operation in subsequent years (replacement of lost or damaged items and staff costs) are \$2,875.

Since the materials could be used by all district elementary students in turn, per pupil costs would depend on total number of district K-6 students. Assuming a district had 3,000 K-6 students, per pupil costs would be:

First year:	\$2.11
Subsequent years:	.95

The cost of purchasing commercial materials for assembling the optional media display is estimated at \$1,360. The cost of contracted services for in-service training workshops and follow-up feedback sessions is obtainable from Project Equality upon request.

EVIDENCE OF EFFECTIVENESS

Claims of Effectiveness

After project materials were developed and extensively revised during the first three years of project operation, they were field tested during the 1977-78 school year in two school districts in the Seattle area. These districts, the Northshore and Bellevue School Districts, are very similar to the Highline School District -- predominantly middle-class with 90% or higher white populations. The three objectives listed earlier on pages 4 and 5 were met in a majority of cases, leading to the general conclusion that target students had expanded their occupational perceptions to include non-stereotyped jobs for both sexes.

Interpretability of Measures

The "Who Should" test was the outcome measure for all sets of materials. Experts on sex-role stereotyping at the elementary level reviewed both versions of the test and confirmed their face validity. Test-retest reliability and item validity were assessed in a school district that had not been exposed to instrument and materials development activities and where women's rights were not formally included anywhere in the curriculum. The reliability and item validity coefficients were found to be within acceptable limits.

Credibility of Evidence

For the 1977-78 evaluation of student outcomes, all tests were administered by the students' classroom teachers. All teachers had received two days of

training and followup consultation from the Project Equality staff on how to implement the materials and how to conduct the pre- and posttesting. During these sessions, teachers were instructed to read test directions and items slowly, to stay as close to the script as possible in order to keep instructions similar for all classrooms, and to use a neutral tone of voice. Teachers were told to repeat questions, if necessary, to allow students enough time to think over the questions before marking their answers.

The K-2 form was administered in two sittings during the same day. The 3-6 form was administered in one sitting. Scoring was done by project staff, with two persons independently scoring each test as a check on accuracy. Scores were key punched for computer analysis and all key punching was verified. Project staff members were also responsible for final analysis and interpretation of results.

Evidence of Impact

Evaluation design. The study to assess impact was conducted with K-6 students in the Northshore and Bellevue School Districts. The study was designed to provide pre- and posttest measures of performance on treatment and control students for each packet or set of materials. The rationale for this design was that real student growth could be assumed to have occurred if the group mean pretest difference was not statistically significant and group mean posttest difference was statistically significant following use of any one set of materials with the treatment group.

In each district, treatment schools were selected from the middle range of average school-wide achievement scores within the district. For each treatment school, another district school was selected whose average achievement scores matched those of the treatment school as closely as possible. Because of practical constraints on evaluation in actual school settings, teachers in the selected treatment schools were asked to volunteer to use Project Equality materials in their classrooms. District field test coordinators selected teacher participants from among these volunteers, paying particular attention to achieving a mix of teachers which was representative of the whole district. Control school teachers were also volunteers and were selected on the same basis. The total number of teachers implementing Project Equality materials in the two districts was 37, while the number of control group teachers was 47.

Results. To display the amount of student growth after implementation of Project Equality, Table 2 has been constructed to show score gains for the treatment students in standard deviation terms. Each value in Table 2

represents the treatment students' score gain divided by the pre- or posttest standard deviation, whichever is larger. That is, each value is equal to:

$$\frac{\text{posttest } \bar{X} - \text{pretest } \bar{X}}{\text{SD}_{\text{larger}}}$$

The larger standard deviation was chosen so that the result would be more conservative estimate of student gains.

As shown, six of the seven materials produced gains of over one standard deviation at one or more grade levels. Eighteen out of 20 gains were greater than one-third of a standard deviation. Gains of one-third standard deviation or more were obtained at every grade level that was tested. These results were obtained in the relatively short time of two to three weeks, using only one set or packet of materials. It is probable that use of more than one set of materials over a longer period would increase impact further.

Table 2
Ratio of Treatment Students' Gains to Larger Standard Deviation (Pre- or Posttest)

		<u>Grades</u>					
	<u>K</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
Yellow, Red, & Blue Book		1.13		.71	1.38	.52	.63
Many Thousand Words		.72		.62	.22	.61	.63
Color Discrimination			1.12				
Crawling & Squatting	.34	1.08	1.73				
Creativity				1.33	1.29		
Assembling				1.31	.10		
Measuring						1.05	.37

Generalizability

The evidence given above demonstrates that these materials are highly effective with populations such as those in the Northshore and Bellevue School Districts. These populations are mainly white and middle class. It is worth noting that all materials, especially those for direct use with students, are unusually attractive and present simple, intriguing activities which make use of skills most students already have regardless of their achievement levels.

Favorable Review by Joint Dissemination Review Panel

The Joint Dissemination Review Panel (JDRP) was established by the Education Division of the Department of Health, Education, and Welfare in 1972. The joint U.S. Office of Education - National Institute of Education (NIE) Panel currently has 22 members, eleven from each agency, appointed respectively by the Commissioner of Education and the Director of NIE. The JDRP meets periodically to review the evidence of effectiveness submitted for a wide variety of federally supported educational products and practices, with effectiveness being the sole criterion for approval by the JDRP. It is charged with the responsibility of ensuring that educational interventions - projects, products, or practices - have been shown to have positive impacts on their recipients before they are disseminated with federal funds or endorsed by the Education Division.¹

In May 1978, the JDRP reviewed Project Equality and approved it for nationwide dissemination.

CONCLUSION

Washington State law and national Title IX legislation both speak to decreasing sex discrimination in all aspects of the education system. In recent studies it has been found that schools, for the most part, are not fully demonstrating the past, present, or future participation of females in a variety of work roles in textbooks, audio-visual materials, career education programs and teaching strategies. Across the country educators are attempting to develop and acquire media and materials which present females and males in non-stereotyped occupational and personal roles. The materials outlined in these objectives fit this requirement, and have been tested in an experimental atmosphere and found to be effective. Project Equality's contributions are a positive step in the direction of improved student self-concept, which can serve to benefit all students and the educational system in which they function.

The original Project Equality Director concluded, "Anything we have done here could be incorporated in any career education program I have seen across the country. The materials present simple, interesting, bias-free activities which demonstrate that work skills can be possessed by persons of both sexes. The materials are relatively low in cost and they are adaptable in every way within any K-6 curriculum."

¹Tallmadge, G.K. The Joint Dissemination Review Panel: IDEABOOK. Washington D.C.: NIE/DHEW, September 1977.